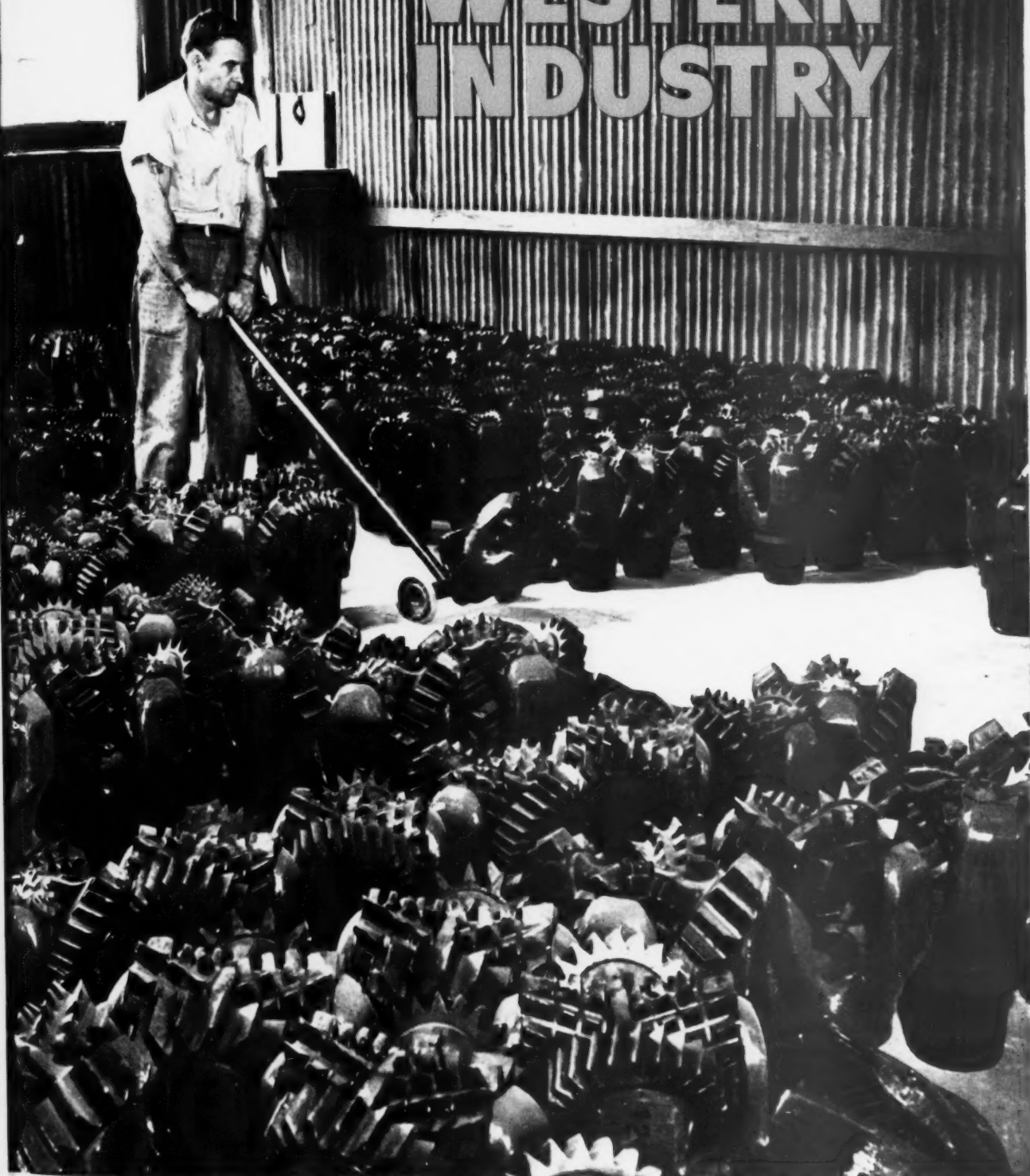


WESTERN INDUSTRY



• Not a cactus garden, but a Western factory floor of rock bits for oil well drilling. For details see page 5.

IN THIS ISSUE: A Production Study: Overhauling Airlift Planes in Oakland; Shipper Snips Bulk Cargo Cost With New Design in Loading; Material Control: — The Missing Key in Incentive Programs; West's Big 7-Year Industrial Growth Revealed by Census; Lab Decentralization Affords Better Quality, More Control; Lesson for Today's Problems in IWW History in the West.

Thirty-Five Cents

VOLUME XIV

NUMBER 7

July, 1949

SAVES ON SHIPPING!

NEW CABCO ALL-BOUND "SQUARES" CUT COSTS AND MINIMIZE BRUISING ON DRY-PACK PRODUCE SHIPMENTS

A 9% saving on container cost. Plus 5¢ per crate saved because paper liners were not needed. No excessive top or bottom bulge. Fast, easy loading and top icing. No bad-order crates or damaged produce reported by receivers. No container recoopering or repacking required at destination. Container weight less than 8% of gross shipping weight.

That's the initial performance record of Cabco "Squares", another all-bound wooden container developed this year by Cabco, and tested in interstate shipments of dry-packed lettuce from Dos Palos, California.

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...light, strong Cabco all-bounds help growers, shippers and manufacturers solve packing and shipping problems. Whether custom designed, or made to standard specifications, Cabco all-bounds give excellent product protection, are easy to handle and fold together instantly without hammer or nails. Cabco all-bounds are a product of the West's oldest, foremost maker of wooden containers.

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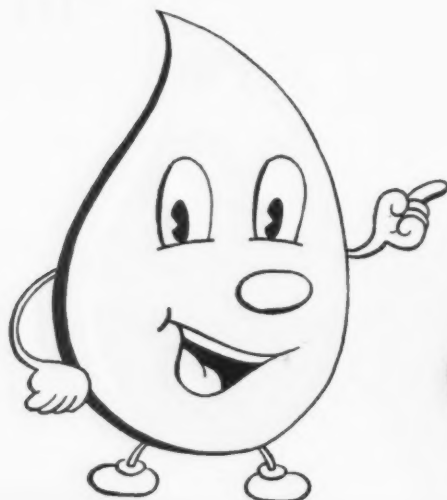
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35c per month \$4.00 per Year

Published monthly by
KING PUBLICATIONS

503 Market Street
San Francisco 5, Calif.
Telephone YUkon 6-1537
Arthur F. King . . . President
L. P. Vrettos . . . V-P & Treas.
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Acceptance under the Act of
June 5, 1934
Authorized January 21, 1947

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This Month in **WESTERN INDUSTRY**

VOLUME XIV

JULY, 1949

NO. 7

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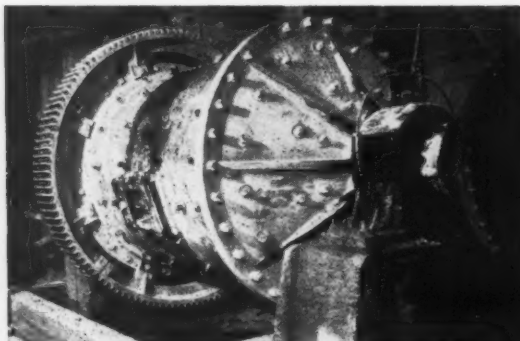
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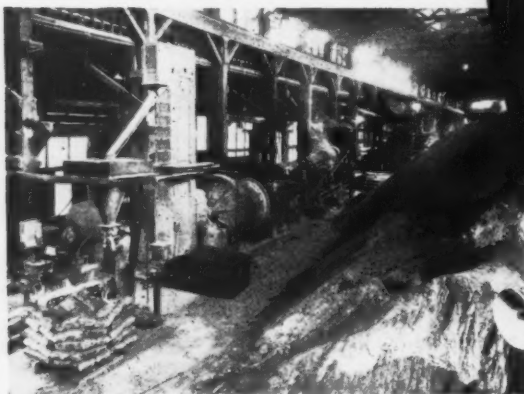
Oil well tools are industrial specialties for which the leading manufacturing center in the country is the southern California area. Scene shows assembled rock bits at the H. C. Smith Oil Tool Company, Compton, California, awaiting shipment. Picture is by courtesy of Wirebound Box Manufacturers Association.



Olivine from the San Juan Islands being unloaded with hopper for drying and storage. This will be mixed with Montana phosphate in the production of a superior new type fertilizer.



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Interior shot of the plant showing sacking operation, Ball Mill and stockpile.

Lube service



John R. Allen (left), President and General Manager of Manganese Products, Inc., discusses the operation with General Petroleum representative Bob Jackson.

licks abrasive dust in new industry

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This highly abrasive dust results from shattering a white hot mixture of olivine and phosphate with water jets and then ball-mill grinding the resulting granules. Without the proper protection of specialized lubricants, it would destroy bearings and gears in minutes.

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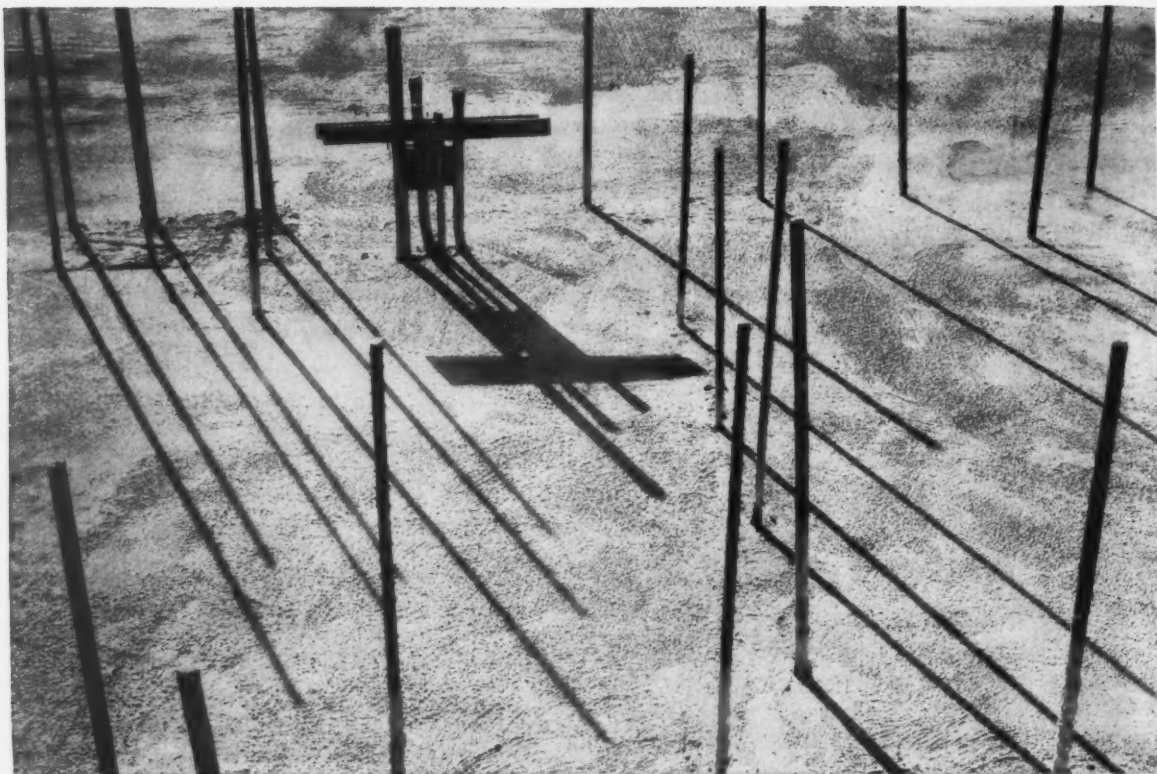
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The G. P. Lube-Engineer is an expert trained to save you money through proper lubrication. The Preventive-Maintenance program he will put into effect for you will result in longer machinery life, simplified lube methods, less buying and stocking problems.



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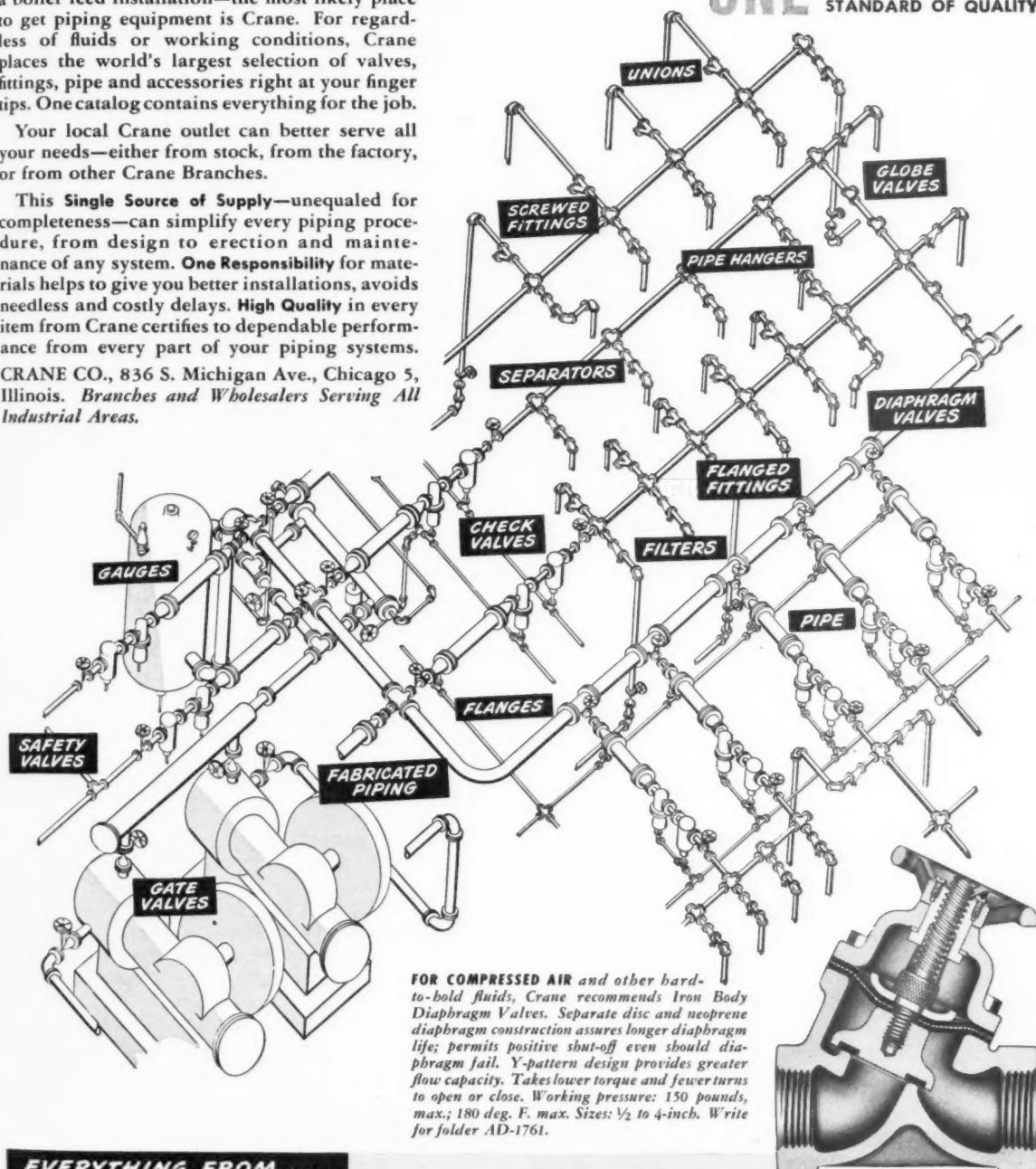
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WESTERN INDUSTRY—July, 1949



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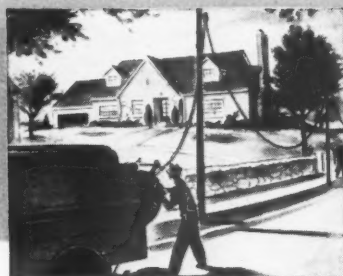
Tough neoprene jacket is *unaffected by electrolysis*, corrosion and extremes in temperature.

Greater flexibility makes handling easier.

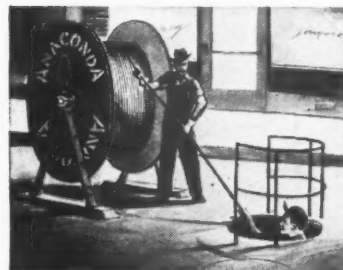
It's rugged: high resistance to oils, flame, abrasion, cutting, impact and the moisture, acids and alkalies found in the soil.

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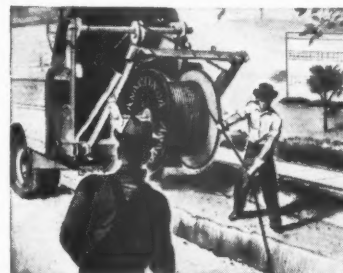
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IN THE AIR—In single or grouped conductors, Durasheath truly provides the one-type cable for all-type use.



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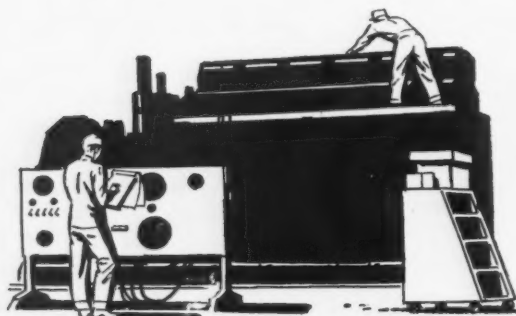
July, 1949—WESTERN INDUSTRY

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Every Day!

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Handle it "Thru-the-Air"



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SAFER — Full magnetic control with control current reduced to 110 volts at the push-button. Plugging crane type limit switch and large double brakes provide maximum safety. No open wiring.

LIFETIME CONSTRUCTION — Precision built — shaved gears running in oil — grease-sealed antifriction bearings — fully enclosed, moisture-proof, dust-proof, acid-proof.

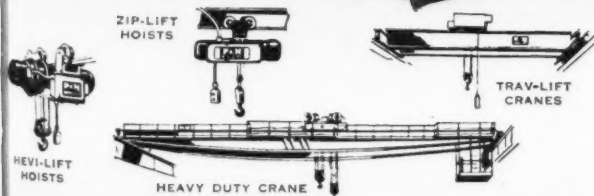
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Los Angeles Factory, Laboratory and Warehouses.



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Six scenes of some of modern equipment in new Industrial Products building. (Top, left) Battery of 34 500-gallon stationary agitator tanks on second floor. (Top, right) First floor outlets of stationary agitator tanks. (Middle, left) Section of 16 100-gallon paste mixers. (Middle, right) 12 of 24 new 15,000-gallon storage tanks. (Bottom, left) One of six roller mills, grinding white enamel base for synthetic finish. (Bottom, right) Small portion of the 50,000 feet of piping in new building.



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IN OUR MAILBOX

Souped Up Economy

Editor, *Western Industry*:

The westward movement of persons to take advantage of the resources and the delightful living conditions in the West is creating a population which fully justifies the location of industries in the West to more economically serve the population.

As an example, the executives of Campbell Soup Company told us 15 years ago that they could more profitably manufacture their products in Camden and ship them to the comparatively small population on the West Coast. The past few years' tremendous population increase has changed their minds and a few years ago they completed in Sacramento their West Coast Plant costing in excess of \$10 million dollars. They now employ on a permanent twelve-months' program approximately 1,000 people.

The resources of the West and particularly the availability of vast quantities of water, such as we have in Northern California and as exist in the Northwest and other western states, together with other resources of importance to industry as well as the potential market in the countries bordering on the Pacific justifies the development of a "Western Economic Program."

A. S. DUDLEY
Secretary-Manager
Sacramento Chamber of
Commerce

Uncle Competition

Editor, *Western Industry*:

Although it might be considered a regional matter, I think that the trend toward government by authorities is of paramount importance to the whole West. Recently, individual bills have been introduced in Congress, one of which would make it possible for the government to go into a number of businesses. Another bill introduced would give the federal government control of all timber resources, which would probably involve cutting, planting, etc. Another bill in the making, as I understand it, will be designed to develop the power resources of Alaska. If these bills can be passed individually, the government will accomplish the same results as if bills like the CVA are enacted.

In other words, it appears to us that the New Dealers are taking two approaches to accomplish the control of the economy of the area, and if one fails, the other might be successful. Interpretations which I have seen of the various CVA proposals would indicate that if any of these bills which are backed by the Administration are put into effect the individual bills referred to above would not be necessary as the same thing can be accomplished under the general CVA legislation.

It is very apparent that the establishment of this type of legislation is only the first step in covering every square foot of the U. S. with authorities and is therefore a matter of interest to the whole country and especially to the West with its enormous resources.

NAT S. ROGERS
President, Seattle Chamber of
Commerce

EDITORIAL COMMENT

Future Food Supply

IN THE adjoining "Mailbox" column appear the first letters received in reply to a questionnaire asking some of our readers whether they felt there was justification for exploration, on an overall eleven-Western-states basis, of outstanding Western problems, such as were discussed at the Western States Council meeting at Boise in March.

To the topics these contributors consider warranting research and discussion, *Western Industry* would like to add water and food supply in relation to each other and to the growth of the West. Here are sample questions that we feel need being asked and answered:

1. Where will the future food supply of the West come from as our Western population continues to grow?
2. What is the most logical and economically desirable trend of agricultural development in the West?
3. Are our big new irrigation projects sound insurance against future food supply requirements?
4. Or are they merely needless competition for existing agricultural areas?

Here is an overall picture of prime importance to the development of the West that we do not believe has yet been drawn.

Tweedledum and Tweedledee

"THE Colorado is flowing merrily out to the sea, while Arizona and California Tweedledum and Tweedledee," says our sister publication, *Western Construction News*, in proposing a new approach to resolve the "ridiculous deadlock" between the two states over use of Colorado River water. The magazine outlines the points of difference that have gone on for 25 years as follows:

"(1) The city of Los Angeles and its neighbor communities feel that they are entitled to further supplies lest the future growth of their rapidly-expanding economy be stunted; (2) water is desperately needed for the vast central Arizona acreage, and a project to cost three-quarters of a billion dollars is proposed, California claiming this expenditure cannot be justified; (3) the states cannot agree by one million acre feet on the proportion of Gila River flow which should be charged against Arizona; (4) nor who should absorb evaporation losses at and below Hoover Dam."

Chief difficulty now, in the opinion of *Western Construction News*, is not the complexity of the problems, but the fact that the negotiators between the two states have been at it for so long that they have lost the will to settle the dispute. So an entirely new committee is proposed, to make a fresh approach to the situation, which is undoubtedly similar to that existing in the case of many strikes, where both sides finally agree on something that both of them knew at the outset (but would not admit, even to themselves) they would eventually have to accept.

Announcing...

WESTERN INDUSTRY'S SEPTEMBER METALS ISSUE

FIRST FORMS CLOSE AUGUST 5

TOPICS INCLUDE STAINLESS STEELS . . . BORON STEELS . . .
HARDENABILITY OF ALLOYS . . . ARC - AIR GOUGING . . .
MODULAR CAST IRON . . . STEEL CASTINGS . . . BRASS AND
COPPER . . . ALUMINUM

Selection of editorial material for our September issue was made after a canvass of program chairmen in the recent Western Metals Congress in Los Angeles. Here is your opportunity to capitalize on the West's great interest in metals—their uses, sources, costs, fabrication. All contributors to this issue are metals experts.

TELL YOUR STORY TO RECEPTIVE AUDIENCE

Your sales story, carried in this September Metals issue, is assured a receptive audience of nearly 9000 topflight plant executives in the 11 Western States. Plan your space NOW. To get the best available position for your ads, airmail or wire space reservations TODAY, stating size and whether bleed or color. Final forms close August 10.



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No Country Cousin

Editor, Western Industry:

Speaking both for myself and Mr. Dobler, President of the Everett Chamber of Commerce, I believe the West is at a point where an overall eleven-Western-states approach can be taken on many problems, such as regional development, land and water resources, overall labor problems and freight rates, shipping, equal agricultural opportunities, etc. There are many things that still cannot be approached on such a large scale.

Aside from those problems which are vital to the whole nation and not just to the West alone, I believe there are specific problems here, like those of physical development and of public information, to let the rest of the country know this area is relatively mature and not still a wilderness to be treated as a country cousin or a cheap source of raw material. In spite of the strides forward in recent years, there are still many people in the East and the Middle West who consider the West a cross between a Hollywood Studio and a Hudson Bay outpost.

Several problems we could discuss and take joint action on are the Valley Authorities problem, the equality of agriculture acreage allotments, the freight rate differentials, a coordinated resources survey, a labor-management aids program that would really set up the whole area on a more stable basis, pushing of the Alaska railroad deal, and a general build up of Pacific Coast trade and shipping; other than that perhaps do something about stretching out our meager water resources in the Pacific Southwest, and endeavor to build up an integrated manufacturing economy that would make us less dependent upon Eastern producers of basic materials.

LEE ODLE

Industrial Manager
Everett Chamber of Commerce
Everett, Washington

Union Eyes

Editor, Western Industry:

The May, 1949, issue of *Western Industry* contains an interesting article on palletized operations at the Oakland Naval Supply Center.

I should like to inquire whether *Western Industry* would have any objection to our photographing the chart on Page 51 for distribution to some of our local unions.

LINCOLN FAIRLEY
Research Director
International Longshoremen's
& Warehousemen's Union
San Francisco

With Pleasure

Editor, Western Industry:

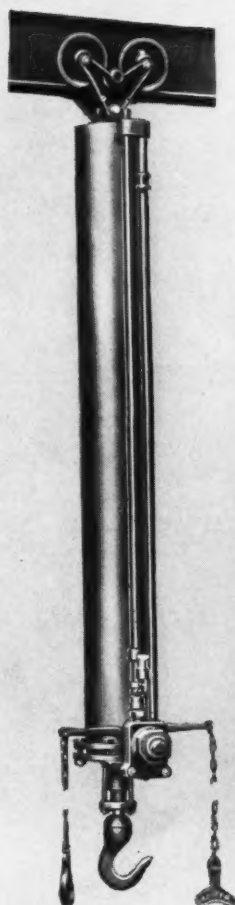
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THE WESTERN OUTLOOK . . . News . Statistics

1

Industrial activity continues to ride on fairly even keel, employment holding steady; Oil production gradually contracting and electric energy loads show declines below seasonal normal; Retail sales stay firm.

A PICTURE of the business situation in the West gained from statistics and indices which necessarily are many weeks behind time because figures take so long to assemble, indicates activity still on a very high level although falling below last year's peak.

Employment figures as of April show a fairly steady situation. The downward trend in California tapered off in March, with gain in canning and other food products largely offsetting the declines in the durable goods industries, where every group showed a loss except automobiles and aircraft. Employment in the lumber industry in the Pacific Northwest is not expected to reach last summer's all-time peak (91,000) in Oregon alone. Some paper and pulp mills have been running seven days, other have cut to six, and there have been some shutdowns.

Carloadings are somewhat down from last year, with the Pacific Northwest reporting the first four months of 1949 as the lowest since 1939. Truck movements reported by California and Arizona are climbing above 1948, however, and export freight through Pacific Coast ports, exclusive of coal, increased 4 per cent in April over the same month last year.

Department store sales through most of the 12th Federal Reserve District are standing up well, even increasing over winter months. A few bankruptcies among canneries indicate that it may be a hard season for the firms on the outer fringe.

Business Activity Indices in Per Cent of 1935-1939 Average

(Taken as basis of 100)

	February	March	April
¹ Arizona	318.3	329.0	348.0p
² California	214.2	218.6	220.5
³ So. California	262.5	265.4	265.4
⁴ Pacific N.W.	(up 2.7%)	209.1p	
⁵ Puget Sound	(up 2.3%)	206.1	
⁶ Inland Empire	(up 4.2%)	189.8	
⁷ Lower Columbia	(up 1.4%)	222.7p	

1) Valley National Bank (Phoenix) index, based on a weighted composite of retail sales, agricultural income, and employment in mining, manufacturing and construction, and seasonally adjusted. 1949 = 100.

2) Wells Fargo Bank & Union Trust Co., index based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonally).

3) Security-First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits 5; agricultural city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.

4) Index compiled by Bureau of Business Research, University of Washington. Basis of compilation not indicated. Preliminary estimate.

MANUFACTURING EMPLOYMENT

Estimated Number of Employees—Sources: U. S. Bureau of Labor Statistics and State Agencies

	WASHINGTON		OREGON		CALIFORNIA		TOTAL PACIFIC	
	1948	1949	1948	1949	1948	1949	1948	1949
February	167,200	163,400	125,500	104,400	703,500	693,700	996,200	961,500
March	184,600	169,000	128,200	112,900	700,400	690,300	1,013,200	972,200
April	174,500	171,750	130,200	119,600	695,800	700,700	1,000,500	992,050

	MONTANA		IDAHO		WYOMING		COLORADO		NEW MEXICO		ARIZONA		UTAH		NEVADA		TOTAL MTN.	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
February	17,300	16,900	17,700	17,600	6,000	6,000	55,100	52,700	8,200	9,500	14,600	14,800	24,119	25,500	3,400*	3,100	.....	.....
March	.....	.....	17,000	18,100	5,600	5,900	.....	.....	8,200	9,600	14,700	15,200	24,402	26,000	3,400*	3,100	.....	.....
April	.....	.....	17,800	17,500	.....	.....	.....	.....	9,000	9,400	15,900	15,500	23,307	26,200	3,400	3,100	.....	.....

*Revised.

WHOLESALESALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

	MOUNTAIN		GROC. and foods exc. farm prod.		General Hardware	
	Automotive Supplies	Electrical Goods	Furn. and house furn.	Change	Change	Change
October	1,098	3,633	471	+ 1	2,483	- 5
November	842	4,339	477	+13	.....	.....
December	518	3,573	300	-15	1,766	+ 6
January	575	2,492	365	-10	1,326	+ 5
February	776	2,791	4	.....	.....	.....
March	881	3,582	.....	.....	.....	.....

	PACIFIC		Industrial Supplies		Lumber & bldg. mat.	
	Change	Change	Change	Change	Change	Change
October	2,879	14,094	1,926	- 3	6,174	- 3
Nov.	2,644	12,860	336	+ 2	9,487	- 9
Dec.	1,705	11,662	366	- 2	4,364	- 3
Jan.	2,061	9,737	1,188	-32	4,308	-14
Feb.	1,383	11,385	271	-33	3,988	-21
March	2,315	13,632	.....	.....	9,163	-16

*Full-line wholesalers.

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1947	1948	1947	1948
October	701,972	531,796	382,413	297,854
*November	601,949	559,768	324,783	325,125
December	376,697	327,037	219,485	202,400

	1948		1949	
	1948	1949	1948	1949
January	515,433	423,684	272,131	242,340
February	593,982	526,425	327,746	328,279
March	455,468	451,267	269,437	264,223
April	508,140	489,843	271,524	259,297

*5-week period.

TRUCK TRAFFIC

(Number of commercial trucks entering state through border checking stations)

	—CALIFORNIA—		—ARIZONA—	
	1948	1949	1948	1949
January	12,666	12,510	.....	.....
February	11,924	11,863	.....	.....
March	13,380	14,377	19,511	22,336
April	13,776	14,755	18,183	22,129
May	14,741	.....	19,059	21,182

BANK LOANS

Industrial, commercial and agricultural (In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

	1948	1949
November	2,252	2,297
December	2,297	2,297
January	2,285	2,191
February	2,191	2,148
March	2,148	2,099
April	2,099	.....

*Includes 3 days of preceding month.

BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

	1948	Net Demand Deposits	Time Deposits
November	8,930	6,014	6,014
December	8,998	6,008	6,008
January	8,959	6,086	6,086
February	8,218	6,031	6,031
March	8,760	6,124	6,124
April	8,421	6,110	6,110

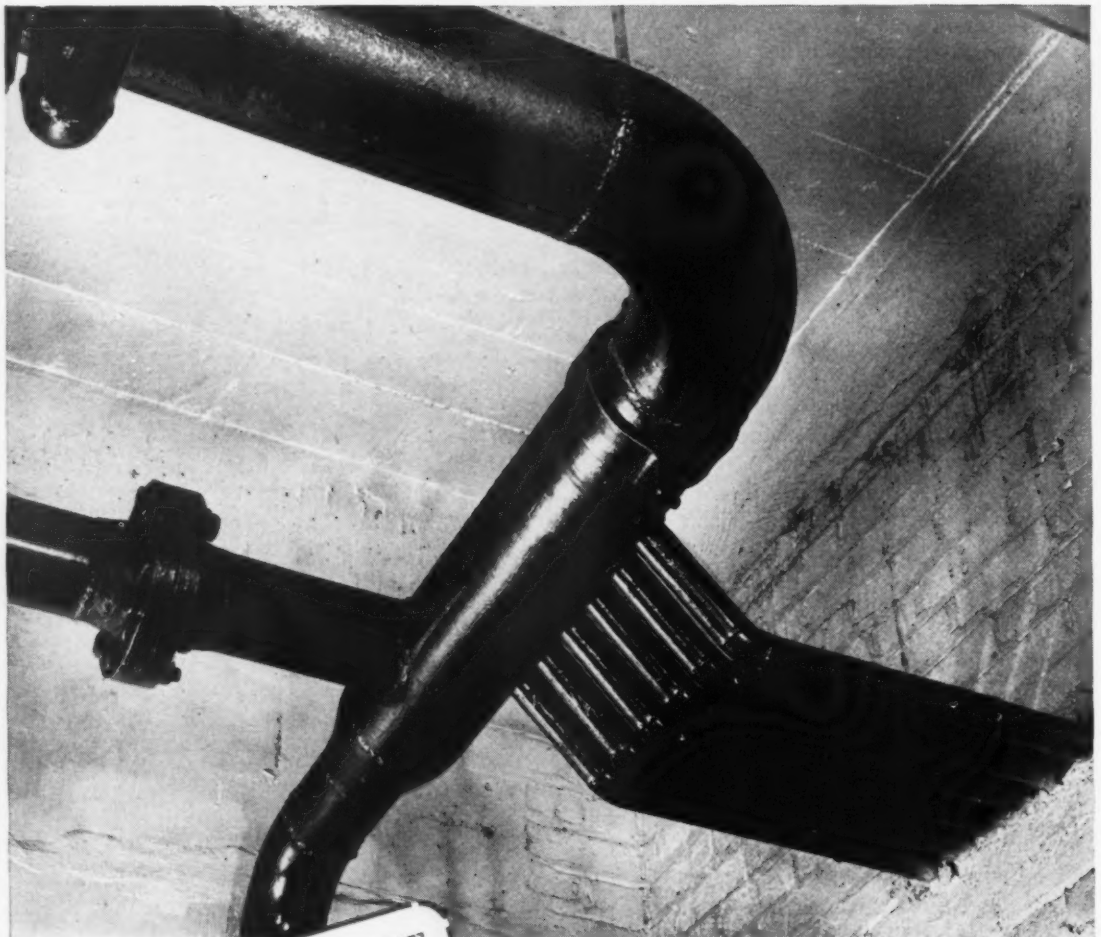
CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics 100 = 5 yr. Avg. 1935-39

	Los Angeles	San Francisco	Portland	Seattle	Denver
Sept. 15	171.0	177.1	.....	.....	.....
Oct. 15	171.8	.....	180.1	.....	171.0
Dec. 15	172.7	176.7	.....	.....	.....
Jan. 15	172.7	.....	178.8	.....	171.0
Feb. 15	171.3	.....	.....	174.3	.....
Mar. 15	171.0	174.6	.....	.....	.....
Apr. 15	171.2	.....	177.6	.....	169.9

	Industrial Supplies		Lumber & bldg. mat.		Mch. equip. and supplies excl. elec.	
	Change	Change	Change	Change	Change	Change
October	2,252	+ 7	1,403	- 6	442	-22
Nov.	2,138	+25	517	- 8
Dec.	360	- 5	415	-20
Jan.	1,508	-20
Feb.	1,876	- 2	923	-37
March	2,009	-10	1,085	-18	634	-30

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THE WESTERN OUTLOOK . . . News • Statistics

2

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.	Southern California	Northern California	Portland	Western Washington	Eastern Washington and northern Idaho	Utah and southern Idaho	Phoenix
	1948	1949	1948	1949	1948	1949	1948	1949
January	347*	334	385	376	295	302	354	326*
February	326*	295	375*	332	286	275	303	279
March	338*	321	385	319	288	285	322	296

*Revised

INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

Bureau of Labor Statistics, Washington 25, D.C.
(1926 = 100)

Year and Month	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Fur- nishing Goods	Miscella- neous	ALL COMMODITIES
1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
January	172.5	165.8	184.8	146.0	137.0	175.9	202.2	125.7	148.2	117.3	160.6
February	168.3	161.5	182.3	145.2	135.9	175.5	201.4	122.3	148.4	115.3	158.1
March	171.3	162.9	180.4	143.7	134.4	174.4	200.0	121.1	148.1	115.7	158.0
April	170.3	162.9	179.9	142.2	132.1	171.4	196.5	117.7	147.1	115.6	156.9

Oil

Sales of oil heaters this year will be 20 per cent greater than last year, it is estimated by the retiring president of the Oil Institute of America. He said the industry expects to sell at least 540,000 power-driven oil burner units as against 450,000 in 1948. Space heater sales will reach the million mark, he forecast.

Estimates of demand for oil in 1949 are being revised downward, partly because of slowing industrial activity, partly because newly developed foreign sources mean less U. S. oil will be shipped abroad. Abnormally warm weather also has reduced need for heating oils.

Production is being gradually cut back and some wells shut in—particularly marginal producers of heavy oil, for which the price has declined. Meanwhile West Coast stocks of crude and finished oil products have mounted despite reduced production. Most of the increase was in fuel oil.

The Canadian government has approved plans for 1000 miles of pipeline to carry natural gas from northern British Columbia and Alberta to the Pacific Northwest of the United States, at a cost of \$175,000,000. Another big pipeline is scheduled to run 1000 miles across four Middle Eastern countries, to carry 300,000 barrels of crude daily from the Persian Gulf fields through

Saudi Arabia, Trans-Jordan, Syria and Lebanon to the Mediterranean, permitting the Arabian-American Company to boost output in Saudi Arabia substantially. Arabian oil now must move 3000 miles by tanker from the Persian Gulf through the Suez Canal.

Standard of California has announced plans for a \$10,000,000 addition to the Salt Lake Refining Company's facilities, adding modern catalytic cracking facilities and additional storage capacity.

With auto production hitting the highest level since 1937, heavier consumption of gasoline

this summer is expected. Twelve states this year have increased their tax levies on motor fuel by amounts ranging from 1/2-cent in Nevada to 2c in New Mexico.

A second new field in the Cuyama Valley of California has been found by Richfield, indicating that the sensational discovery of a few months ago may be part of an even greater strike than was realized. Some geologists believe the two may be part of a chain of fields similar to the amazing network underlying the San Joaquin Valley.

PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)
(From Bureau of Mines)

	CRUDE PRODUCTION (Barrels, daily avg.)	TOTAL DELIVERIES (Thousands of barrels daily)							
	1948	GASOLINE	GAS OIL & DIESEL		HEAVY FUEL OIL	ALL PRODUCTS			
October	938,000	356	332	139	108	375	295	1,010	850
November	953,000	317	351	138	140	380	320	978	942
December	950,000	349	358	173	185	441	387	1,091	1,072
	941,000	356	369	143	172	392	426*	1,026	1,016
January	941,000	356	369	143	172	392	426*	1,026	1,016
February	947,000	360	365	..	171	398	391	1,025	1,059
March	949,000	336	368	141	152	369	386	1,036	1,056

NATURAL GAS (CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

	— Number of Consumers —		*Utilization (in thousands of cubic feet)			
1949	Domestic and Commercial	Industrial	Domestic and Commercial Sales	Industrial Sales	Electric Generation	Net Receipts from Producers
January	2,562,162	5,754	39,896,269	5,130,286	2,009,387	54,385,974
February	2,579,818	5,751	39,829,298	6,000,347	2,314,215	44,446,396
March	2,590,038	5,766	31,154,708	9,567,485	2,993,925	44,722,443

Natural Gas

First quarter figures from California show 183,398 more domestic customers than a year ago, accountable for partly by new homes being built, but mostly by increased population. Domestic and commercial sales increased substantially, while industrial use was up over last year, but by a lesser margin.

Electric Energy

Load declines greater than the seasonal normal are reported by the Federal Power Commission from parts of the West. In the Seattle area, for example, loads are lower than last year. Utility companies have been able to complete their maintenance schedules ahead of time because of favorable weather conditions.

Run-off on the Columbia River is higher than last year, but has been spread out over a longer period, thus avoiding flood danger. Northern

California still faces a tight condition for supply this season, but danger of shortage is not too great. Normal run-off, or a little better, is expected in the Boulder Dam watershed. In the Salt River Water Users Association territory in Arizona there is still some shortage of power because it is served under a 25-cycle set-up and there is insufficient frequency changer equipment to convert 60-cycle power that could otherwise be used.

Grand Coulee brought another 108,000 kw. unit into operation in May, and the fifth and

final Shasta Dam generating unit is now in operation, while the Montana Power Co. have completed a 56,000 kw. installation at their Kerr plant.

Coal

The intermountain bituminous coal industry operated generally at three days per week during May, which is normal for the summer season. That rate will probably be maintained through June and early July with a fall pickup starting in late July.

ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1947	1948	1947	1948	1947	1948	1947	1948
October	1,260,471	1,376,602	1,575,071	1,803,868	1,726,521	1,817,105	3,301,892	3,629,973
November	1,260,982	1,418,988	1,595,287	1,791,197	1,602,374	1,752,738	3,197,661	3,543,945
December	1,400,439	1,488,417	1,717,793	1,939,865	1,693,604	1,887,968	3,411,397	3,827,831
	1948	1949	1948	1949	1948	1949	1948	1949
January	1,426,511	1,524,171	1,749,203	1,913,279	1,683,736	1,893,025	3,432,939	3,806,304
February	1,363,093	1,423,744	1,648,682	1,721,271	1,590,049	1,610,229	3,238,731	3,331,500
March	1,200,824	1,312,949	1,628,060	1,774,425	1,572,699	1,688,540	3,200,759	3,462,965
	* Revised.							

*Revised.

BITUMINOUS COAL AND LIGNITE

(In thousands of tons—From Bureau of Mines)

	Colo.-N. Mex.		Wyoming		Utah	
	1948	1949	1948	1949	1948	1949
February	781	755	638	520	671	645
March	474	573	343	531	326	716
			Montana		Wash.-Alaska	
			1948	1949	1948	1949
February			253	270	162	122
March			272	248	115	118

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Steel

Output of Western steel mills, including CF&I, reached an all-time peak of 451,926 tons in March, but a drop of about 8 per cent followed in April, down to a level of 414,794 tons. This was 10,000 to 20,000 tons below the big production months of November, December and January, but slightly above the figure for October

of last year. Employment conditions in the fabricating industries in California indicate the use of steel as about 10 per cent below 1948.

Continued softening in the market goes on, with some price declines and the situation generally favoring the smaller mills which are absorbing freight and hindering U. S. Steel and Bethlehem, who are adhering to f.o.b. pricing.

Aluminum

Although the aluminum market has weakened, it has not suffered to such a degree as has copper. The prewar pattern of slow business in summer seems to be returning, but the reduction plants on the Pacific Coast have been running all spring, although at the rolling mill at Spokane some 300 men were laid off.

According to estimates of the Bonneville Power Administration, the five aluminum reduction plants in the Pacific Northwest produced 295,000 tons of primary aluminum, or 47.4 per cent of the total U. S. production in 1948. The percentage produced in the Pacific Northwest has increased steadily since the first production in 1940 of 5,000 tons, or 2.4 per cent of the Nation's total. Output of the Permanente rolling mill at Spokane was 125,000 tons last year.

Alloy Steel

	Output	Carbon Ingots, Hot Topped*
October	6,879	10,916
November	4,995	13,593
December	5,357	10,242
January	7,706	9,096
February	5,945	13,769
March	8,127	13,896
April	5,068	12,999

*Included in total steel.

IRON AND STEEL

Western Area of the United States
From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent of Capacity	Steel Output	Percent of Capacity
November	209,571	97.8	428,986	103.1
December	216,958	98.2	425,969	99.4
January	232,437	93.9	436,216	97.6
February	209,082	93.6	402,533	99.7
March	235,176	95.0	451,926	101.1
April	216,431	90.3	414,794	95.8

Nonferrous Metals

Nonferrous metal production is tapering off but not so sharply as scattered shutdowns and cutbacks to a 40-hour work week would indicate. The effects of the reduced work week and falling prices are being partially off-set by the mining of the better grade ores. In some instances the reduction of the work week by one-sixth does not reduce production by a comparable amount. One operator reported that his production increased under the shortened week.

Although the Stockpiling Act of 1946 was intended to provide for government purchases of strategic materials when civilian consumption fell off, in order to stabilize production and maintain steady prices, the Munitions Board and Bureau of Federal Supply have no plans to buy zinc in the fiscal year 1950, and will not indicate what lead purchases they will make. Their explanation is that the government has no need to purchase either of these metals because civilian consumption has declined, leaving a plentiful supply.

NONFERROUS METALS**MARCH**

(Production in short tons. From U. S. Bureau of Mines)

	ARIZONA	UTAH	MONTANA	NEW MEXICO	NEVADA	WEST'N STATES
Copper	37,400	20,700	5,475	5,453	4,300	74,171
Lead	2,800	4,650	1,670	832	1,000	23,230
Zinc	5,700	3,910	5,405	3,822	2,200	33,839

Lumber

Sawmills of the Douglas fir region cut 430,000,000 feet of lumber less up to the end of

May than for the first five months of last year, but the weekly average was 115.2 per cent of the 1943-1948 average.

PULPWOOD

(Pacific Northwest)
(Cords of 128 cu. ft., roughwood basis,
Source: Bureau of Census)

	Receipts	Consumption
October	402,835	294,824
November	266,617	270,353
December	266,617	270,353
January	199,406	278,747
February	31,976	260,689
March	207,096	299,282

STRUCTURAL CLAY PRODUCTS

UNGLAZED BRICK (in thousands of standard brick)
UNGLAZED STRUCTURAL TILE (short tons)
VITRIFIED CLAY SEWER PIPE (short tons)

	Mountain	Pacific	Mountain	Pacific	Mountain	Pacific
October	15,964	31,230	2,780	2,662	2,537	15,642
November	12,202	23,662	3,059	3,025	2,181	15,233
December	10,854	19,003	3,311	2,852	2,569	14,050
January	6,864	12,192	2,200	1,494	2,321	13,630
February	7,877	11,163	1,502	1,468	2,280	12,967

CEMENT

(In thousands of bbls.; from U. S. Bureau of Mines)

	—California—	Oregon - Wash.	Utah - Idaho
Oct.	1,964	589	431
Nov.	1,969	639	591
Dec.	2,013*	462	418
	1,890	517	387
1947	1,948	1947	1948
Jan.	1,936	422	354
Feb.	1,824	414	208
March	2,013	515	590

*Revised.

LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

	1947	1948	1949
Year through April	2,741,790	3,102,229	2,590,693

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

	1948	1949
Year through May	1,059,962	887,278

From California Redwood Ass'n figures (includes redwoods and whitewoods):

	1949
Year through April	157,749

Building Materials

Construction costs, which do not include building fixtures such as plumbing, heating, lighting, sprinkler system, etc., apparently hit their peak in January this year and have begun to fall off ever since, according to the American Appraisal Company's cost indexes. These reflect the cost trend in each city, but do not indicate the relative trend between cities. Figures for four Western cities are as follows, based on 100 for 1913:

	Jan. 1949	Feb. 1949	Mar. 1949
Denver	453	447	444
Seattle	526	516	511
San Francisco	459	452	448
Los Angeles	484	477	475

Aircraft

Labor costs in the aircraft industry may be due for a rise. The United Auto Workers, at a western conference of leaders, declared they will seek to raise earnings of aircraft workers "to a par with those in the automobile industry." They called on other aircraft unions to join UAW in the program.

As an example of current wage levels, Lockheed reports that the average wage of hourly-paid employees at the end of 1948 was \$1.53, as compared with \$1.48 a year ago, \$1.28 at the end of 1945, and \$.79 ten years ago. Labor represents about 43 per cent of the cost of the airframe.

Employment in the industry has levelled out, declines in some plants being offset by increases in others.

An \$18,000,000 order for Constellations—six of them for Air France, four each for South Africa Airways and Royal Dutch Airlines (KLM), two for Air India International—brings to 179 the number of Constellations Lockheed has sold since the war's end.

A signpost for further airline economies was erected when CAA raised the permissible gross weight for Constellations another 5000 pounds to 107,000. Originally the limit was 86,250, but now it is reported that "Connies" have been flown at a gross weight of 137,000. The additional 5000-pound weight will be distributed about equally between fuel and payload, the latter representing roughly 11 passengers and their baggage. It means an additional revenue of \$5800 on a flight of 3000 miles.

Indicating results of the airlines' sweeping drive to reduce costs, Western Air Lines reports it could show a net profit in 1949 with a load factor of 51 per cent, if it can maintain its present level of costs and mail rates. Western has just offered its fleet of surplus DC-4's for sale, following acquisition of an entire new fleet of 10 Convair Liners. Western recently cut fares 5 per cent, dispensing with free meals served aloft.

Major helicopter operating companies of the West Coast have formed an association for promoting usefulness of the "eggbeater" craft.

Cement

Production in cement plants was off 15 to 20 per cent the first three months of the year, due to cold weather and rain, and this loss apparently cannot be wiped out. As a result, production for the year is expected to be down about 10 per cent from last year. There is plenty of demand and the mills are plenty busy.

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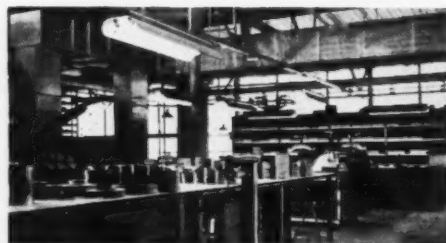
A few of the industries we are equipped to serve are:

Aviation manufacturers, chemical plants, drydocks, electrical utilities, food processors, lumber mills, meter manufacturers, mines, oil equipment manufacturers, oil refineries, paper mills, pipeline operating companies, steamship operators, shipyards, steel mills, sugar refineries, valve manufacturers, water companies, etc.

For further information, write to your nearest Johns-Manville office: 777 Thomas St., Seattle 9; 116 New Montgomery St., San Francisco 5; 816 West 5th St., Los Angeles 13.



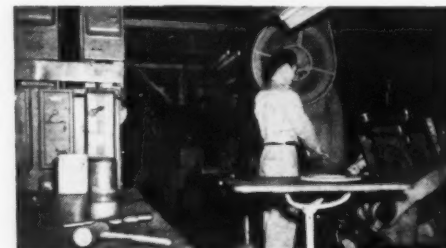
A general view of the Pittsburg gasket shop



The handhole and manhole gasket department



The sorting and packaging department



One of the many presses at Pittsburg

Johns-Manville

PACKINGS & GASKETS

Chemicals

Fertilizer consumption for the first quarter of 1949 in California was off 10,000 tons from last year, the California Fertilizer Association reports. Figures are as follows:

	Jan-Feb-Mar 1948	Jan-Feb-Mar 1949
Mixed Commercial Fertilizer.....	55,304	42,725
Normal Superphosphate.....	14,678	15,056
Ammonium Nitrate.....	8,526	9,630
Ammonium Sulphate.....	21,174	25,889
Ammonium Phosphate (16-20).....	6,028	4,652
Treble Superphosphate.....	2,786	1,815
Ammonium Phosphate (11-48).....	591	355
Liquid Mixed Fertilizers.....	2,867	1,157
Activated Sewage Sludge.....	1,384	1,790
Calcium Agonamide.....	2,485	2,536
Sodium Nitrate.....	4,146	3,772
Liquid Phosphoric Acid.....	939	882
Calcium Nitrate.....	2,729	4,922
Nitrogen Solutions.....	5,181	3,099
Potassium Sulphate.....	1,061	1,405
Ammonia Liquor.....	692	1,067
Vera.....	181	2,383
Others.....	7,640	8,966
TOTAL.....	141,394	131,906

Total West Coast consumption of natural fats and oils may be as high as 1,110,000,000 pounds a year, according to estimates presented to the Western Chemical Market Research Group by Conrad J. Gaiser. His estimate, based on population and U. S. Department of Agriculture figures on fats and oils as for 1947, is 88,850,000 lbs. of drying oils, exclusive of edible oils and soap oils:

Linseed oil.....	66,980,000 lbs.
Tung oil.....	3,630,000 "
Oilseed oil.....	2,520,000 "
Castor oil.....	3,820,000 "
Fish oil.....	4,620,000 "
Soy bean oil.....	6,810,000 "
All others.....	520,000 "

Canning and Packing

Frozen food statistics issued by the National Association of Frozen Food Packers show that the West, after a wild surge of output in the 1946 season, dropped back in 1948 to a level where it produced approximately half each of the national frozen fruit and vegetable output. The West's total frozen fruit and berry pack was 190,558,879 pounds, about 25 per cent below the 1946 total, but somewhat above the 1947 pack. Vegetables, amounting to 239,234,432 pounds, were likewise below the 1946 peak but above 1947.

The West took flyers in apples, apricots, prunes and blackberries in 1946. All of them had dropped back 50 per cent by 1948, except the skyrocketing apricots, which had fallen from more than 43,000,000 pounds in 1946 to about 2,500,000 pounds last year, the shooting-star peaches, which dropped from 65,000,000 pounds to 13,000,000, the slightly less spectacular apples, which almost hit 27,000,000 pounds in 1946 but were down in a 6,000,000-pound cellar two years later, and the lowly prunes, which touched 14,000,000 pounds in 1946 but back to 2,000,000 pounds in 1948. On the other hand, boysenberries and black raspberries almost held their own, loganberries had climbed a little higher, and strawberries showed a spectacular gain that nearly offset all other losses, rising from nearly 38,000,000 pounds three years ago to more than 102,000,000 last year.

Vegetables tell a somewhat calmer story. Asparagus declined about 25 per cent, green and wax beans showed a fair gain, lima beans more than doubled, rising from 20,000,000 pounds in

1946 to more than 47,000,000 last year, broccoli gained slightly, brussels sprouts declined about 25 per cent, carrots were up a fair percentage, cauliflower stood rooted in its tracks, and corn was down from 23,000,000 pounds to about 11,000,000. The old standby, peas, are down in volume almost one-third from three years ago; same story for spinach.

The first export purchasing of canned foods of any size for three years was done in May, when a British purchasing mission bought almost 90 per cent of the remaining stocks of California sardines, approximately 200,000 cases, at a price of \$2,225,000. The British also have been allocated \$2,650,000 of ECA funds to purchase canned fish of all varieties during the first quarter of the next fiscal year, beginning July 1. It is expected the bulk of the money will be spent for sardines.

As a big California cling peach crop is in sight, likely comparable to 1946, when 534,000 tons were delivered to the canneries, a packer-grower control is in prospect under a state market order which will limit the pack to No. 1 fruit and increase the minimum diameter above the present 2 3/8 inches.

Heavy carryovers of apricots, peaches, fruit cocktail, tomatoes and tomato products remain on hand. California tomato acreage estimated at 85,000 acres, 2,700 acres under the harvested acreage of 1948. Northwest pea canning acreage down about 10 per cent, but freezing acreage up slightly. Prices average \$8 a ton less for canning than last year, and \$5 for freezing.

Sugar

Despite the strike situation in Hawaii, California and Hawaiian Sugar Refining Company have been able to keep their big cane refinery at Crockett, Calif., in steady operation, with hopes they would not run out of material before the strike ended. Their Potrero refinery in San Francisco, purchased from Western Sugar last year, has been down since the middle of May as a result of the Hawaiian strike. Mills in

Apparel

Employment in apparel manufacturing has shown recent slight declines in some lines and limited advances in others. Forthcoming production schedules will be influenced considerably by outcome of Fall Market Week meetings late in June.

In view of recent trends in the industry, discussion is centering upon probable declines in raw material costs, inventory dangers, and improvement in workmanship and general quality to meet consumer resistance.

Meanwhile the general undertone of retail apparel sales is considered good, following improvement in late spring.

CALIFORNIA COTTONSEED

(In tons of 2,000 lbs.)

	Receipts at Mills	Crushed or Used
Feb. 1949.....	19,262	35,400
March.....	6,994	41,759

CALIFORNIA COTTONSEED PRODUCTS

	Crude Oil (1,000 lbs.)	Cake & Meal (tons)	Hulls (tons)	Linters (Running bales)
February.....	11,917	17,044	6,817	12,254
March.....	14,182	19,532	9,219	14,053

Meat

The smallest crop of lambs in history is being forecast, but if a big supply of grain is available for feeding, hog output this year will be large. Meat packing plants have been suffering from a low price for their products in comparison with the retail price situation.

Hawaii have been continuing to produce raw sugar, and when the strike is concluded shipments can be resumed immediately. Crop estimate has been raised 5,000 tons, making the expected yield 1,052,000 short tons, raw value.

Beet sugar plantings this year are late, but the growing season so far has been good and a crop equal to last year is looked for. Spring crop in the Imperial Valley was down about half from last year.

CONFECTIONERY AND COMPETITIVE CHOCOLATE PRODUCTS

(From Bureau of Census)

(In thousands of dollars)

	COLO. - IDAHO - UTAH Per Cent Change from same month of Preceding Year	— WASH. - OREGON — Per Cent Change from same month of Preceding Year	— CALIFORNIA — Per Cent Change from same month of Preceding Year
Month	Sales	Sales	Sales
September.....	593	599	2,156
October.....	808	466	2,929
November.....	980	580	3,253
December.....	901	453	2,669
January.....	577	397	2,333
February.....	490	296	2,122
March.....	589	412	2,504

Flour

Pending the arrival of what is expected to be the second largest wheat crop in history, flour mills in the West have been operating on a hand-to-mouth basis, trying to gear their output to bakers who are also working on a day-to-day basis. Mills will be running on new crop wheat this month.

Despite the expected size of the crop, there is a reported scarcity of certain high protein types of wheat in the Pacific Northwest. Army

buying of hard wheat flours in recent months has considerably improved. While the law requires 12 1/2 per cent of all grain shipped abroad for relief to be milled in this country, the ratio of Pacific Northwest grain made into flour before export has been running about 9 per cent.

Importation of southwest and Argentine bran into Pacific Coast territory has cut the demand for mill feed considerably, and to escape higher production costs the Coast mills have switched to barley.

WHEAT FLOUR

(In thousands of sacks; from Bureau of the Census)

	Ore. - Wash.	Montana	Utah	Colorado	California	Total
October.....	1,405	332	349	496	325	2,907
November.....	1,550	288	314	462	329	2,943
December.....	1,554	285	318	445	372	2,974
January.....	1,539	269	313	439	375	2,935
February.....	1,388	236	269	366	353	2,612
March.....	1,269	277	329	426	372

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Structurals—I Beams, H Beams, channels, angles, etc.

Plates—Sheared and U. M., Inland 4-Way Floor Plate

Sheets—Hot and cold rolled, many types and coatings

Tubing—Seamless and welded mechanical and boiler tubes

Stainless—Allegheny metal bars, sheets, plates, tubes, etc.

Machinery & Tools—For metal fabrication

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THE INDUSTRIALIZED WEST



MINERALS CONCENTRATION ... New cost-reducing methods pull profits from lower grades of ore. Humphreys spiral concentrator in use at Climax Molybdenum mine, at the crest of the Continental Divide in Colorado. Here 128 spirals handle 6,000 tons daily of flotation mill tailings for recovering tungsten concentrate. Men shown are E. J. Windolph, shift boss, and E. J. Duggan, Climax Molybdenum's mill superintendent.

A Production Study: Overhauling Airlift Planes In Oakland

VERY likely the Russians were no more surprised over the success of the Berlin airlift than were most Westerners to learn that a big proportion of these airlift planes were being overhauled in their own backyard—at the Oakland, California, airport, to be exact.

Quite a tribute to the industrialization of the West to have planes flown some 10,000 miles for maintenance work. Not only have we serviced the airlift ships, but also the planes of such foreign operators as Icelandic Airways of Iceland, Bharat Airways of India, and Philippine Air Lines, plus those of various domestic lines.

By **RALPH A. FREY**
Assistant to the Vice President
Aircraft Engineering & Maintenance Co.
Oakland, California

Furthermore, this maintenance is being done on a production line basis, at the rate of one plane a day. No small feat to organize and set up a 15-station operation of this size almost overnight and smooth it out into a commercial business under peace-time labor and cost requirements. The cleaning job alone presented a major problem, because we have learned the hard way how dirty an airplane can get. Some of these airlift planes are literally black from

nose to tail, covered inside and out with coal dust. In some cases, coal and dirt accumulations weighed as much as 350 pounds. Several pounds of chips the size of pea coal have been taken from some of the interiors.

Aircraft Engineering & Maintenance Co. was formed in June 1948 as a wholly owned subsidiary of Transocean Air Lines of Oakland, the world's largest contract carrier. Several months earlier, Transocean had purchased considerable equipment from the air transport division of Matson Navigation Co. and taken over Matson's lease of certain airport facilities. After Transocean had

been awarded a contract for overhaul and reconditioning of 45 four-engined Skymasters for the United States Air Force, the advantages of a separate maintenance organization became obvious, and AEMCO came into being.

The original contract called for an 8,000-hour overhaul on a maximum of six airplanes a month, but shortly after work started the Air Force notified AEMCO that this would be supplanted by "cycle reconditioning." This called for removal and reconditioning of certain parts of the aircraft after 1,000 hours of flying, reconditioning of other parts after 2,000 hours, etc., through the total of 8,000 hours. AEMCO also would be expected to complete a minimum of 14 aircraft a month, and this later was boosted to 20 a month.

Obviously our first plans for keeping each plane in a given location while being worked on were no longer ade-

AEMCO EXECUTIVES

Chairman: Orvis M. Nelson, (president and founder of Transocean), United Air Lines pilot for 10 years, leader in pilots' associations.

President: Ray T. Elsmore (executive vice-pres. of Transocean) World War I flyer, piloted first air mail flights out of Salt Lake City in 1948, commanding officer of several Air Force groups and wings in World War II. Also an attorney-at-law.

Vice-president in charge of Engineering and Maintenance: E. H. Borgard 30 years experience as pilot, mechanic and maintenance superintendent.

Executive assistant to the president: T. W. Maxwell, 15 years consulting industrial engineer.

Assistant to the president: R. L. Treece, resident auditor for General Accounting Office for seven years, previously banker for 15 years.

Assistant to the vice-president: Ralph A. Frey active in military and commercial aircraft maintenance for 12 years.

Maintenance Superintendent: W. D. Knowles, maintaining and supervising maintenance for 26 years.

Chief Engineer: R. J. Lang, aeronautical engineer for nearly 10 years.

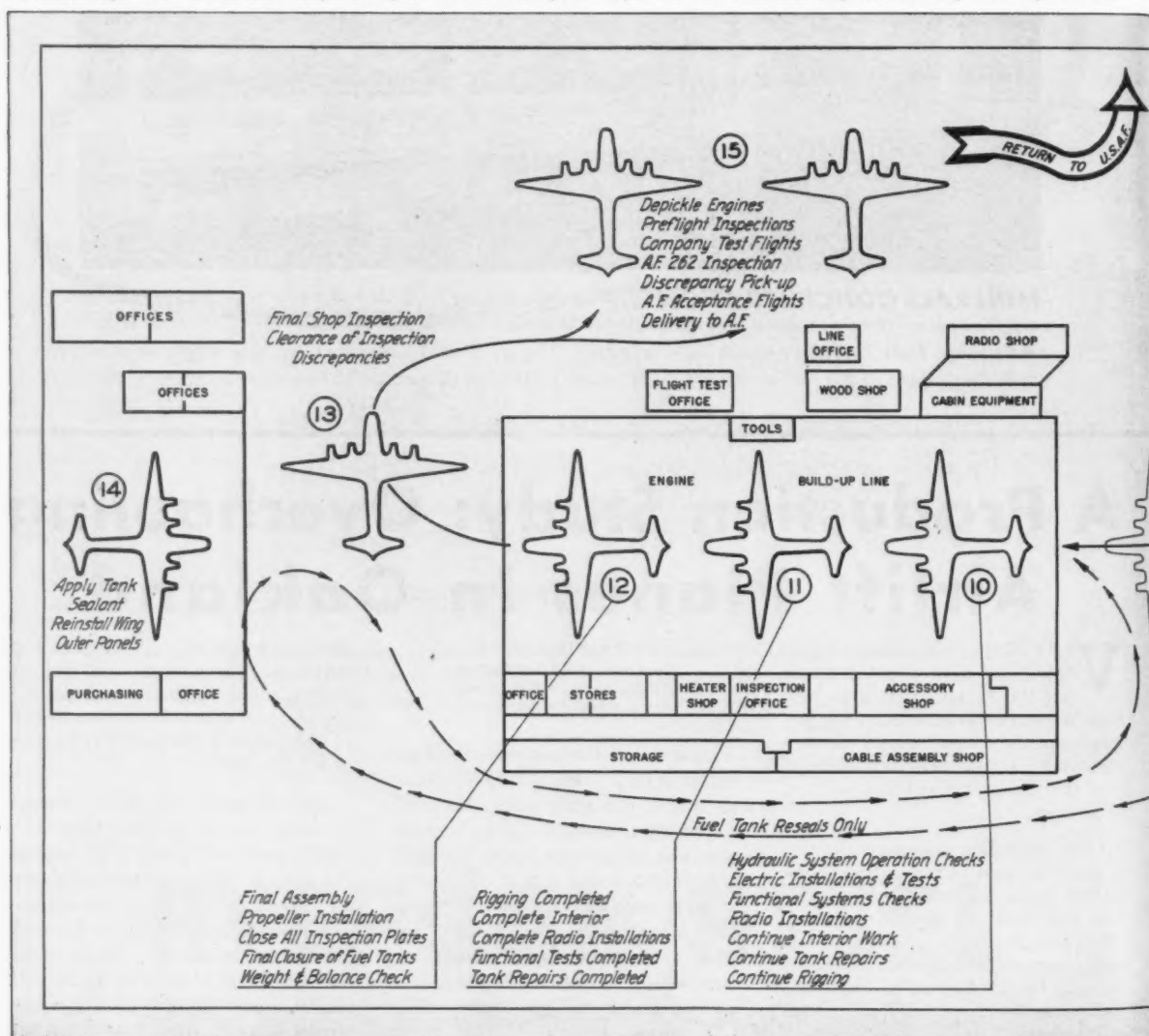
Quality Control Manager: George Anderson: aircraft maintenance, inspection and supply for over 30 years.

quate, and skilled workers were not easy to obtain. Consequently much of the work would have to be broken down so that semi-skilled and unskilled labor could be taught to do certain jobs and then develop skill and efficiency by repetitive accomplishment.

A production line system was the answer, and constant surveillance, daily tabulation of man hours expended at each station and continual study of the manpower-to-work load ratio of each station have all contributed to the steady improvement in work planning job distribution and general overall efficiency.

With the growth of the airlift demand and the work for other customers, the shops have been greatly expanded and up-to-date equipment installed, and we now have nearly 1,500 employees, with key supervisory personnel well experienced in aircraft and maintenance engineering fields.

• A bird's eye view of Aircraft Engineering & Maintenance plant layout at the Oakland airport, showing their operations.



The AEMCO overhaul production line is made up of 15 stations, eight outside and seven in the hangars.

Every airplane does not necessarily proceed through each station, however. Those requiring complete stripping and resealing of the integral-type fuel cells, for example, proceed through Stations 3 and 14, whereas others not requiring fuel tank resealing skip them. Also, most of the airplanes going through the reconditioning process do not stop in Station 9, as this is primarily a buffer station for picking up scheduled work that might not have been completed in the first eight stations.

Station 1—Preliminary Inspection

The first step in the line is Station 1, for a preliminary inspection which includes a check of the records to determine the type of cycle reconditioning due, making an inventory of the equip-

ment aboard, list the shortages, a check for a possible need for major structural repairs, an inspection to determine if fuel tank resealing will be necessary, and other routine inspections.

The preliminary inspection is made by a closely coordinated, specialized team consisting of several inspectors, a production engineer, and a material control representative. All items not normally removed for reconditioning under the requirements of the cycle check are thoroughly inspected and marked for repair or replacement if their condition warrants it. Fuel tank leaks are charted to determine whether or not complete tank resealing will be required.

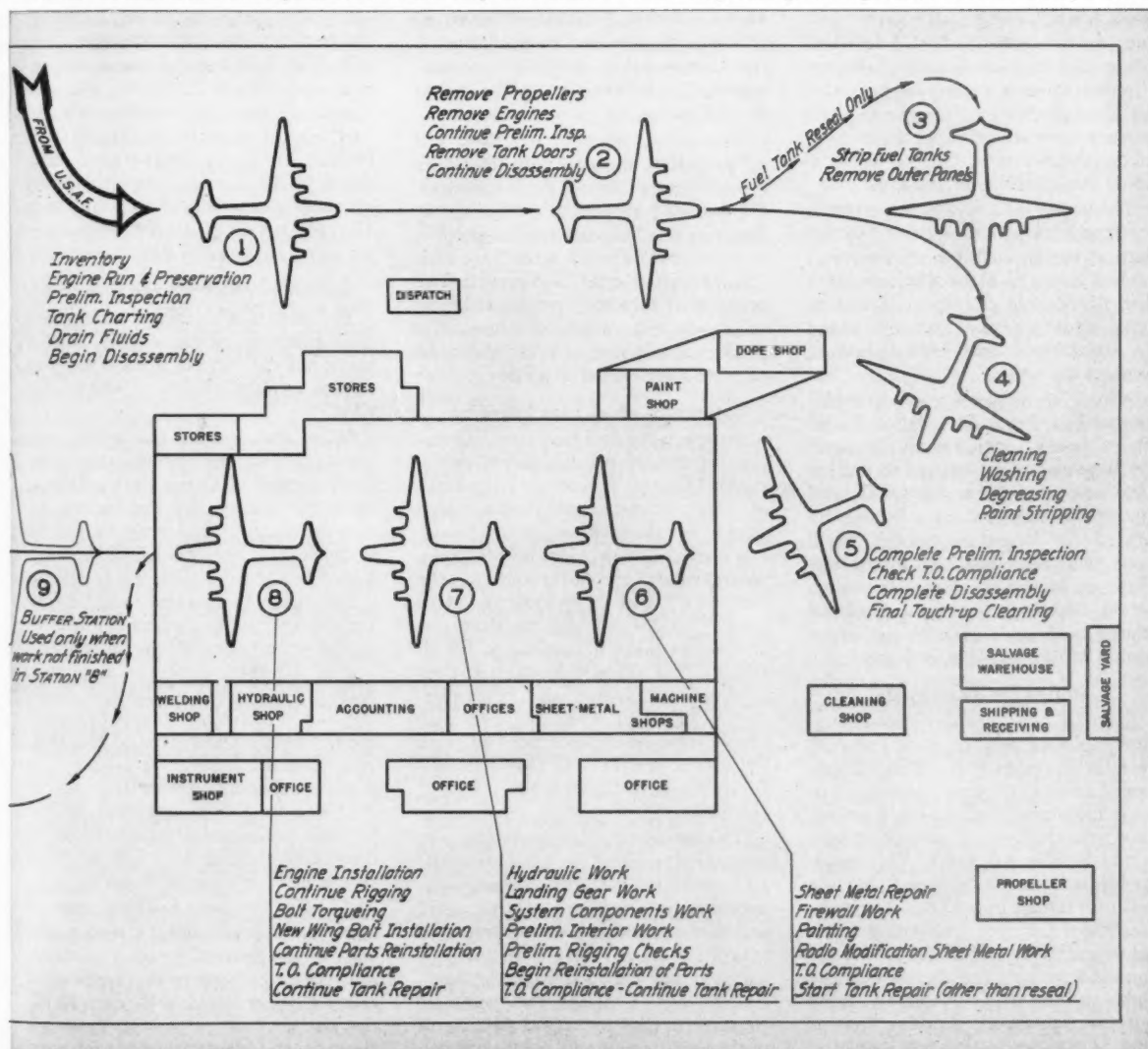
As the inspectors make notes of the work to be done, the production engineer estimates the added man hours to be required, if any, and determines the final scheduling of the airplane.

If complete fuel tank resealing is necessary, he will schedule it into Station 3 for stripping. If major structural repairs that cannot be done in the line are necessary, he will require it to be removed and set in a designated area for these repairs before entering the line again.

While the inspectors and production engineer are determining the probable extent of the work to be done, the material control representative inventories the loose equipment aboard and notes all shortages. Airplane components and parts that appear to be missing on inspection are also noted by him when called to his attention by the inspector.

Although the preliminary inspection is not a complete shake down, because certain items cannot be thoroughly inspected until removal of components is begun, it has contributed considerably toward a smoother operation in later sta-

• From the time Berlin airlift planes arrive until they leave AEMCO's care they each go through these stations and operations.





• These are the men who are responsible for the rapid success of Aircraft Engineering & Maintenance Company in overhauling U. S. Air Force planes on the Berlin airlift run. Left to right,

they are: R. A. Frey, Thomas W. Maxwell, T. T. Walker, R. L. Treece, Ray T. Elsmore president; E. H. (Ted) Borgard, vice president; George Anderson, Robert Lang, and W. D. Knowles.

tions, since it provides the supervisors and foremen concerned with sufficient advance information to accomplish more effective planning. Orders can be placed for shortages long before the airplane is ready for installation of the missing items, shops can be alerted if additional work will be required, etc.

This preliminary type of inspection is continued throughout the first five stations as the airplane proceeds through various stages of disassembly, in order that all possible discrepancies can be noted before it reaches Station 6, where the actual repair and reinstallation of components begin.

All engines are given a run-up in this station and hydraulic, electrical and other systems operationally checked. The engines are then treated or pickled with rust preventive compound, and those to be sent out for overhaul are pickled for long-time storage, while those remaining installed in the airplane are treated for a shorter storage period. Following the run-up, fuel and other liquids are removed and disassembly of the airplane is begun.

Station 2—Disassembly

Every USAF C-54 aircraft proceeding through the AEMCO overhaul line must have certain parts and components removed and sent to the specialized shops for reconditioning and repair, in accordance with the cycle requirements submitted by the Air Force. This disassembly is begun in Station 1, but the bulk of it is done in Station 2. The items are removed, tagged and routed to the appropriate shops. The tags identify the units as repairable and also indicate the number of the airplane from which the units were removed. Working from a copy of the production schedule, the

shops complete the necessary work on the units in time for them to arrive at the station where they will be reinstalled, just before the airplane arrives in that station.

The engines due for overhaul, and all propellers and fuel tank doors, are removed in this station. Engines remaining installed are given a valve check. Removal of other parts and components to be reconditioned in accordance with the appropriate cycle is continued. The preliminary inspection procedure begun in Station 1 is continued without the production engineer or material control representative on the inspecting team.

Station 3—Fuel Tank Stripping

Station 3, the fuel tank stripping station, is one of the highlights of the AEMCO plant. It has two large tanks of 2,000 gallons capacity each, which once served the Navy as mooring buoys, mounted and installed by AEMCO employees under the supervision of the fuel tank repair crew foreman. High capacity pumps and large diameter lines and valves make it possible to fill all tanks of the C-54 with chemical stripper in approximately one hour. High pressure pumps and lines equipped with needle-spray nozzles are used to wash the residue sealant from tank interiors, following soaking with the stripping chemical.

This installation has resulted in very substantial savings in labor, material and operating costs. The stripping compound can be used over and over again and very little of it is lost during each tank fill-and-drain cycle. The sealant is softened and loosened from the structure to such a degree that complete cleaning of the tanks can be accomplished with a minimum number of man

hours. Operating costs of the electrically driven pumps are very reasonable.

Its tank stripping facilities have contributed greatly to AEMCO's ability to completely strip and reseal the integral fuel tanks of a C-54 in less than 20 days. Present Air Force contract production schedules, calling for completion every month of a minimum of four tank seals (including full cycle reconditioning), are being consistently met.

Station 4—Washing and Cleaning

In Station 4, all airplanes undergoing reconditioning are thoroughly cleaned inside and out. All old paint is stripped off and surfaces are cleaned and brightened.

When the operation first began, conventional soaps and cleaners manufactured to standard AN specifications were utilized, but these did not cut the accumulation of dirt and grime that clung to the aircraft like barnacles to a ship's hull. Then began a concerted search for a cleaning compound that would do the job required with a minimum expenditure of man hours. With the cooperation of Air Force inspectors, tests were made with a variety of chemical cleaning and brightening compounds until the best one for each type of cleaning, and there are many, was found. The various compounds presently in use at AEMCO have been approved by the Government, although standard government specifications have not yet been established for some of them.

AEMCO's cleaning station is equipped with two steam cleaners, several vacuum cleaners, a variety of chemical cleaning compounds, application brushes, water hoses, and other facilities designed to aid in the thorough cleaning and de-greasing of interiors



• Showing one section of the engine overhaul shop, where detailed work is performed by skilled craftsmen on these vital powerplants. Engines found not in need of complete overhaul

are left in the planes, after being thoroughly checked. Those removed for stripdown are sent to this shop, where they get a prop-shaft-to-exhaust-pipe treatment before being reinstalled.

and exteriors of airplanes and their parts. Corrosion inhibitors and neutralizers are also required to combat the several types of corrosion that attack the metals used in aircraft construction.

Station 5—Preliminary Inspection Completed

Here are the final stages of the preliminary inspection. Parts and areas that could not be given a thorough inspection before cleaning are now gone over very carefully. A check is made of all applicable technical order and other modification instructions to ascertain, by actual physical inspection, which of them have been previously complied with, and which must be done in conjunction with the reconditioning work. Final touch-up cleaning is done where inspection has indicated a need for same, and the aircraft is readied for its move into the next station.

Station 6—Sheet Metal Repair

The bulk of the work done here, the first station located inside a building, is sheet metal work. Repair of structural skin damage, fire wall repairs, installation of brackets and other sheet metal components of technical order and special modification requirements are accomplished. Necessary painting of exterior insignia and markings and of the interior of the aircraft is also accomplished in Station 6. Compliance with certain technical orders is effected, and spot repairs to integral fuel tanks on airplanes not requiring the complete resealing are started.

One of the obstacles that had to be overcome in setting up the production line was a broad walkway suspended below the roof of the hangar between Stations 6 and 7, which extends below the roof truss far enough to prevent moving a C-54 airplane under it with-

out a collision with the tall vertical fin. All difficulties were finally overcome when an AEMCO supervisor designed a mobile dolly on which the nose wheel is placed, dropping the tail back to the desired level. Then, when the plane is to be moved to the next station, a tow tug is attached to the dolly and the plane is easily rolled forward into Station 7.

Station 7—Hydraulic Landing Gear Work

All necessary hydraulic system work is accomplished in Station 7. Landing gear units to be overhauled are removed as complete assemblies and replaced with serviceable assemblies that have been previously overhauled. Preliminary work on the cabin interior is begun, preliminary engine control system rigging checks are accomplished, and technical order compliance and fuel tank repairs continue. Reinstallation of parts removed in the first five stations and sent to shops for overhaul is commenced in this station.

Station 8—Engine Installation

By the time the C-54 reaches Station 8, it is well on the way toward being a complete airplane again. New engines are installed and a considerable number of airplane parts find themselves newly reconditioned and back in their proper place in the complexity of the assemblies that make up a modern airplane. Technical order compliance and tank repairs continue, as do rigging procedures and accomplishment of a multitude of other details.

At present, the AEMCO C-54 line is geared to handle a complete tank reseat on every fifth plane in the line. Those planes requiring a complete stripping and resealing of the fuel tanks have their outer wing panels removed in Station 3. They proceed to Station 8 in a normal

manner while the outer wing panels are sent to station 14, where the resealing process is begun on them. Upon completion of the work done in Station 8, these airplanes are moved out of the line and into Station 14 for resealing of their center wing tanks and, finally, replacement of their outer wing panels. Later, they re-enter the line at Station 10 and proceed on through the final stations.

Station 9—Buffer

Station 9 is seldom used any more, although it was a big help at first, until procedures smoothed out. It is an outside station located between two hangars, established primarily as a buffer to allow for completion of work not finished at the scheduled time for movement out of Station 8, and to prevent a delay in movement of the first eight line stations in the event of an unexpected delay in the latter half of the line.

Station 10—Operational Checks

Since the removal and reinstallation of landing gear units in Station 7 required all the time allotted to that station, provisions had to be made for making an operational test of the landing gear elsewhere. Station 10 is the place where the plane is again jacked up for a thorough check of the operation of the landing gear and other hydraulic system units, and for installing and testing electrical and instrument system units. Radio gear is installed and tank repairs continue if necessary. Technical order compliances are made here also.

By the time this station is reached, the interior work is rapidly nearing completion. Airplanes designated for passenger use have interior upholstery installed, and cargo configurations have their new floors and metal slide strips



• Fuel tank stripping operation. High pressure pumps and lines are used to wash the residue sealant from tank interiors, following soaking with stripping chemical.

put in. The $\frac{3}{4}$ " hard maple plywood desired by the Air Force for flooring presented quite a problem for a while. Wooden cargo floors must have many holes in them to provide access to the tie-down rings that are a part of the airplane structure. Conventional hole cutting saws soon dulled, overheated and cracked. Saw replacements were not keeping up with the breakage rate.

One day the wood shop foreman heard of a hole cutting saw made out of a single casting and having a cutting blade that encompassed only a segment of a circle instead of a complete

circumference. Its initial cost was high, but a trial run soon convinced everyone that it would pay for itself in time saved. Cutting holes in the tough wood is no longer a problem, and cargo flooring goes into the aircraft in Station 10 with speed and dispatch.

Airplanes that have had their fuel tanks resealed move out of Station 14 and re-enter the line at this point. At first they were processed in the line through Station 13 and then placed in Station 14 to await completion of the tank resealing.

This resulted in confusion and delays following tank work, since the airplane had to re-enter Station 12 for final weight and balance checks. Also, it was invariably delayed in Station 15 for pick-up of shortage items and discrepancies which were allowed to "ride," with the intention of clearing them while the airplane remained in Station 14, and were then forgotten. Moving the aircraft to Station 14 following work in Station 8 and then bringing them back into the line at this station has resulted in elimination of all of the obstacles encountered under the previous set-up.

Station 11—Near Completion

In Station 11 all interior work is finally completed, except for some minor touch-up work that must always be done just before the airplane is delivered. All rigging functional tests, radio work and tank repairs are also finished up here.

Station 12—Final Assembly

Reconditioning of the airplane is now nearly finished. The propellers are installed in Station 12, fuel tanks and other interior wing and structural areas are inspected and closed, and final assembly is completed. All required equipment is placed aboard and the airplane is weighed. Weight and balance calculations are effected and preparations for a company final inspection are made.

Station 13—Final Inspection

All C-54 aircraft processed through AEMCO's overhaul line are given a complete company final inspection of all areas except those interior areas that were inspected and closed up in previous stations. Discrepancies noted on inspection are remedied, and the aircraft tanks are filled with fuel and thoroughly checked for leaks.

Station 14—Tank Reseal

This is an isolated station in which the integral fuel tank interiors are coated with a sealant material. Outer wing panels, removed in Station 3 in order to facilitate lining of tanks with sealant, are reinstalled here. As already mentioned, the planes then return to the main line, re-entering it at Station 10.

Station 15—Test Flights

The last station, where the engines are de-pickled and preflight inspection and engine run-ups are performed. Following de-pickling and ground checking of the engines, come the test flights and remedying of any discrepancies.

The average time required for an airplane not in need of major structural repairs or modification to proceed through AEMCO's plant, from the date custody of the plane is assumed by the Company to the date of final delivery to the customer, is 23 days.

AEMCO maintains a rigid quality control over the materials used and the work done in this plant through its inspection department.

WESTERN INDUSTRY—July, 1949

Shipper Snips Bulk Cargo Cost With New Design for Loading



• Motorship Rolando, the new look in loading on West coast waterfronts, provides express lumber service from Oregon mill.

WESTERNERS who handle bulk materials — lumbermen, in particular—are showing more and more interest in a shipping operation that reduces transportation costs by 30%, and regularly discharges 100,000 board feet of lumber per hour from ship hold to dockside, with shoreside assistance of only three longshoremen and a mobile crane and operator.

Before development of this new method, a two or three-gear ship with covered deck was the general lumber cargo vessel, and a load of 650,000 feet of lumber used to require 36 men from 40 to 44 hours to discharge. Now it is done in about six hours.

Irwin-Lyons Lumber Company, with mill and base of operations at North Bend, Oregon, pioneered this innovation at considerable expense to themselves, but dividends from their investment are beginning to show in the form of lower transportation costs, lower materials costs to their customers, and a greater volume of business.

Handling lumber in such a fast and efficient manner is dependent upon two well-integrated operations: a properly laid out and regulated mill operation at

the source of supply, and a specially rigged ship for transporting the product.

Irwin-Lyons found it necessary to add mill units to their North Bend installation, and reorganize the enterprise to fit well into the scheme of operation. They also obtained a specially-fitted cargo ship to complete the project.

Main key to this entire operation is the orderly assembly of cargo at the mill, with a minimum of handling and lost motion.

Whenever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on handling of materials.

A new double-end trimmer and a new fast-feed planer were purchased and installed to size the lumber rapidly and accurately. Now, as the boards are fed out of the mill at the rate of 700 feet per minute, they are carried down a long conveyor type sorting table. Men are stationed at convenient points alongside it, for the purpose of selecting pieces of lumber as they travel down the sorting table and stacking them in piles of like size. Each pile of lumber, built on carrier blocks, contains all pieces of the same cross-section dimensions and the same length, and makes a neat bundle.

When 2500 to 3000 feet are accumulated in a pile, a lumber carrier whisks it away to the banding machine, where half-inch galvanized wire bands are fastened securely around each end, making a solid unit block. Then this "package unit" is moved to dockside, where a steel cable sling is wrapped around it and left for loading aboard the ship.

Transportation phase of Irwin-Lyons' operation is carried out by the 203' 6" motorship ROLANDO, a converted LSM. This ship, the former LSM 648,



• Here is the Rolando at a San Francisco dock, discharging her 650,000 feet of lumber. Mobile crane at extreme right transfers package units of lumber from ship to dockside, placing them on the carrier blocks there. Sailors aboard ship work cargo, and three longshoremen ashore handle that end. Two Ross lumber carriers are kept busy removing loads from the dock to storage

yard, seen in background. Each package unit of lumber has 2500-3000 feet bound on each end with half-inch galvanized wire. Bundles, 20 feet or longer, are provided with two steel cable slings; those under 20 feet have only one. Slings, specially made for the purpose are removed at the dock and sent back to the mill on the empty ship for further use on other loads.



• Rolando under way, loaded with 650,000 feet of sized lumber enroute to California. She has made seven round trips in 30 days.

saw war service in the South Pacific. She is a twin screw vessel, powered by two 1440-h.p. General Motors diesels. Owned by Irwin-Lyons, she was fitted with a new bow and reconstructed for their purpose at a cost "in excess of \$150,000."

She carries no hoisting gear and she has no top deck. Bridge, crew's quarters and engine rooms are amidships, and fore and aft cargo space is open from the bottom loading surface to the sky.

As she rides at dock at North Bend, a company-owned crane picks up the package units of lumber by their slings and deposits them aboard in snug-fitting fashion. All lumber shipped is surfaced, since rough lumber would take up 25% more space in the hold for the same amount of board feet. About 250 of these package units are stowed to make the cargo approximating 650,000 board feet per trip. Eight hours is normal loading time.

Rolando carries a crew of 16 men, all S.U.P., under Captain Eberhard H. Stahlbaum. When she first started operating last summer, a union jurisdictional dispute arose between the Marine Firemen, Oilers and Watertenders opposing the Sailors Union of the Pacific.

National Labor Relations Board clarified this months-long argument when they ruled in favor of the Sailors Union of the Pacific. During this dispute, Ro-

lando was tied up at the Oregon dock from August, 1948 until mid-April, 1949, when she again started on her regular coastwise rounds, with shipping schedules depending upon demands for lumber at the sales outlets.

In the first 30 days of 1949 operation she made seven round trips to both San Francisco and San Pedro, carrying about 650 thousand feet of lumber on each trip.

At unloading points, a rented mobile crane with operator and three longshoremen are all the additional assistance (to the regular ship's crew) required to discharge her cargo at the rate of 100,000 feet per hour. At San Pedro on a recent trip, the 650,000 feet were unloaded in five and one-half hours, using the crane, three longshoremen, and two lumber carriers.

Sailors work the cargo aboard ship, by hooking the cable from the crane into the slings around the package units, one by one, and helping each bundle to swing off the ship without becoming tangled in or obstructed by any of the ship's gear.

Ashore, the longshoremen hustle carrier blocks in position for the crane operator to drop the bundle of lumber in place where wanted. After he drops the bundle on the blocks, a longshoreman removes the cable sling from the load while the crane is turning toward the ship to pick up another bundle.

A lumber carrier, standing by, immediately straddles the wirebound unit (as soon as the crane is out of the way and the sling is removed) and seizes it, hoists it, and hurries off the dock to the storage area. Before the crane has returned with another bundle, longshoremen have quickly spotted another pair of carrier blocks ready for it. By the time the crane swings around, the other lumber carrier is on the dock in position, awaiting its load.

All steel slings, after being removed from the package units of lumber, are threaded on a heavy hawser placed alongside the dock rail, so that after the entire load of lumber is discharged all slings will be in one place and easy to handle. They are then picked up by the crane and placed aboard ship to be returned to the Oregon mill for further use.

About 500 such slings were especially made for this operation at a cost of approximately \$5 each. While 250 are in transit, the other 250 are at the mill preparing for shipment.

In the storage area, which is a large lumber yard, fork lift trucks are busily engaged stacking the package units in their respective places in orderly manner, as the lumber is handled a minimum number of times, and where the lift trucks place it is where it stays until it is sold to the consumer.

Material Control:---The Missing Key in Incentive Programs

Material control, the procedure for building up material flow and on-the-spot handling facilities to support incentive wage plans sounds simple, but it involves six easily-overlooked aspects that are indispensable to success. Here they are:

- (1) Flow of material or parts on a production line.
- (2) The availability of parts or material for individual operations.
- (3) Availability of facilities for processing the available material.
- (4) Material yield control.
- (5) Scrap material and reject control.
- (6) Control of the physical characteristics of material which may result in variables of time, rejects, quality, etc.

Criteria

If we cannot control all of these factors, we are not ready for an incentive wage plan. If we attempt a plan, or already have one before licking these problems, where there are problems, then I assure you much grief and sorrow. You will pay through the nose many times and will end up with poorer labor relations besides.

Standards must be guaranteed. Unions demand them if you have not already decided upon them yourself. Are you willing and prepared to guarantee anything you do not or cannot control? Consider the following situation:

Offer Opportunity

With regard to the flow of material and parts, whether it be on a production line or an individual operation, we gain nothing by offering an incentive to a worker when we do not offer this worker an opportunity to work 60 minutes in each hour. The fact is, we will probably increase costs, for in any acceptable incentive wage plan we must pay base rate for the waiting or delay time beyond the worker's control. So, a worker who formerly did 1,000 pieces in eight hours is offered a bonus; he now performs this work in six hours.

By BENJAMIN BORCHARDT
Management Consultant, Los Angeles

Then no material or parts are available, so the worker waits two hours, for which he is paid his base rate and our costs have gone up just that much. You say, "Oh no, not in my plant." I say, "Oh yes, in your plant." Of course the worker does not stand around two hours at one time. It is a matter of a few minutes here and there, but 60 minutes make one hour, and 120 minutes make two hours.

On individual operations it is usually relatively simple to schedule work so as to have a bank of material or parts ahead of each operation. On a production line operation it is not so simple.

The mystic word "production line" is so intriguing to many in management that such a production line is intro-

duced without due consideration to all facts and conditions. Unless we have absolute balance of all operations, and have the means of estimating a uniform rate of production for all operators, we will have unbalanced flow of material or parts and we will have waiting time, either apparent or hidden, but waiting time nevertheless, for which we must pay. Of course, if we have not correctly scheduled material into the line, the problem is even more serious—the entire line is down, and that is exactly what sometimes happens on the production line in our large automobile assembly plants.

Who Pays?

Let's not fool ourselves, we pay for that sort of thing.

As to control of facilities, I think the answer is more than obvious. If our facilities are in disrepair or not adequate, then we cannot utilize the worker's time to advantage. What does an incentive mean to the worker when the facilities handed him by management do not permit him to earn extra compensation? Or even worse, if we assume that the limitations due to poor facilities are normal and are allowed for in the standard itself. Then again we merely pay for something which we do not get. However, such procedure is frequently followed.

Yield Control

With regard to yield control, if the worker in any way controls the yield, that is, the money value of the outgoing product in relationship to the incoming material, then look out.

A straight production bonus with no regard to this end product value can sometimes put you out of business. One of the best examples I can think of is in the saw mill industry, where practically every sawyer controls the value of the product he is cutting.



BENJAMIN BORCHARDT

More specifically, I think of a case in my own experience, the cut-off line for a sash and door and box factory. In this case a low grade of lumber was used with the idea that the sawyer should upgrade as much as possible in making his various cuts. His cutting orders ordinarily would include just about everything from a clear door stile to a low grade of box shook. On a board footage basis, the door stile is worth infinitely more than the box shook. If we offered a straight production bonus to an operator on such a cut-off line, the incentive obviously would be to get as much product as possible, and again, obviously, we would get mostly box shook.

By applying a bonus plan, based upon a yield ratio—that is, a ratio of the value of the cut product to the incoming lumber—and modifying this figure by the actual rate of production, it was possible to establish an incentive wage plan that not only insured maximum production, but also maximum value of product.

The results were astounding. The value of the cut product was increased approximately \$30.00 per day per saw. This incentive wage plan was applied in 1932. Based upon today's lumber values, the increase in value would be many times the above figure.

Another good example of the need for a yield control in connection with a production incentive, is in a shoe factory where leather is cut into parts for shoes. Unless some control is established over the value of the parts cut in relationship to the total skins, the shoe manufacturer will soon be out of business.

Control of Scrap and Rejects

Scrap, after all, is material representing a material loss and usually also a labor loss, even though the scrap can be reprocessed. If we have no positive means of controlling scrap, we are again in trouble. The question arises: Shall we pay a worker a bonus when he is not making a salable product? In other words, let us ask ourselves the following questions:

1. Shall we credit all production to the worker, whether good or reject?
2. Shall we have a blanket allowance for an acceptable percentage of scrap or rejects?
3. Shall we credit only good parts, and not credit whatsoever for rejects?
4. Shall we establish a penalty for scrap or rejects?
5. Shall we have a plan of penalty, plus additional bonus for greater or less than predetermined allowance for scrap or reject?

The answer to all of these questions depends upon your own specific conditions. The mistake is too often made of applying an incentive wage plan in Plant B, because such a plan was successful in Plant A, where conditions

and circumstances were entirely different. We must tailor the plans to fit the conditions, which brings us back to the questions:

First—Who is responsible for making the scrap or rejects; and

Second—What is the value of material in relationship to labor costs.

There are, of course, many other variables to be considered, but lock up these two first. They will usually tell you most of what you want to know about how to control scrap and rejects.

Tough Nut to Crack

Control of physical characteristics of material is a real tough nut. If the raw material has varying characteristics which we cannot control, or possibly even determine, or possibly we have a combination of these uncontrollable or unknown variations, then how can we possibly be in a position to apply wage incentives to production? Here again I think of a particular case.

It deals with the manufacture, that is, the pressing, of vinylite phonograph records. The raw material has varying characteristics, most of which are unknown, at least at the present time. Any one of these characteristics, or combination of them, may occur or in some way assert themselves for no particular reason that we know of.

The result is that in pressing the material into phonograph records we may not have a single reject or scrap record

in 100 pressings, i. e., rejects due to these material characteristics which the worker cannot control. Or then again we may, in unusual cases, scrap 99 out of 100 pressings for reasons which are entirely beyond the worker's control, and to the best of our knowledge, are a matter of uncontrollable variations in the raw material.

We are closer to solving the problems than we were six months ago, but it is still far from being licked, and until we have these variables under control, a production wage incentive would be about as useful and beneficial as the measles.

I can cite many other similar cases, but I believe this one is sufficient. So far it may seem as though I have been somewhat negative on the subject of wage incentive, even though I specialize in establishing such plans. Well, I love a good steak, but I am nevertheless negative about one cut from the side of a sick cow—it will most likely make me sick.

Trouble is bound to ensue if we attempt to apply a wage incentive plan before we have controlled material and material flow in all of the phases mentioned. Once this has been achieved, a sound, well engineered, well maintained incentive wage plan will not only reduce your unit labor costs, but will also improve your labor relations.

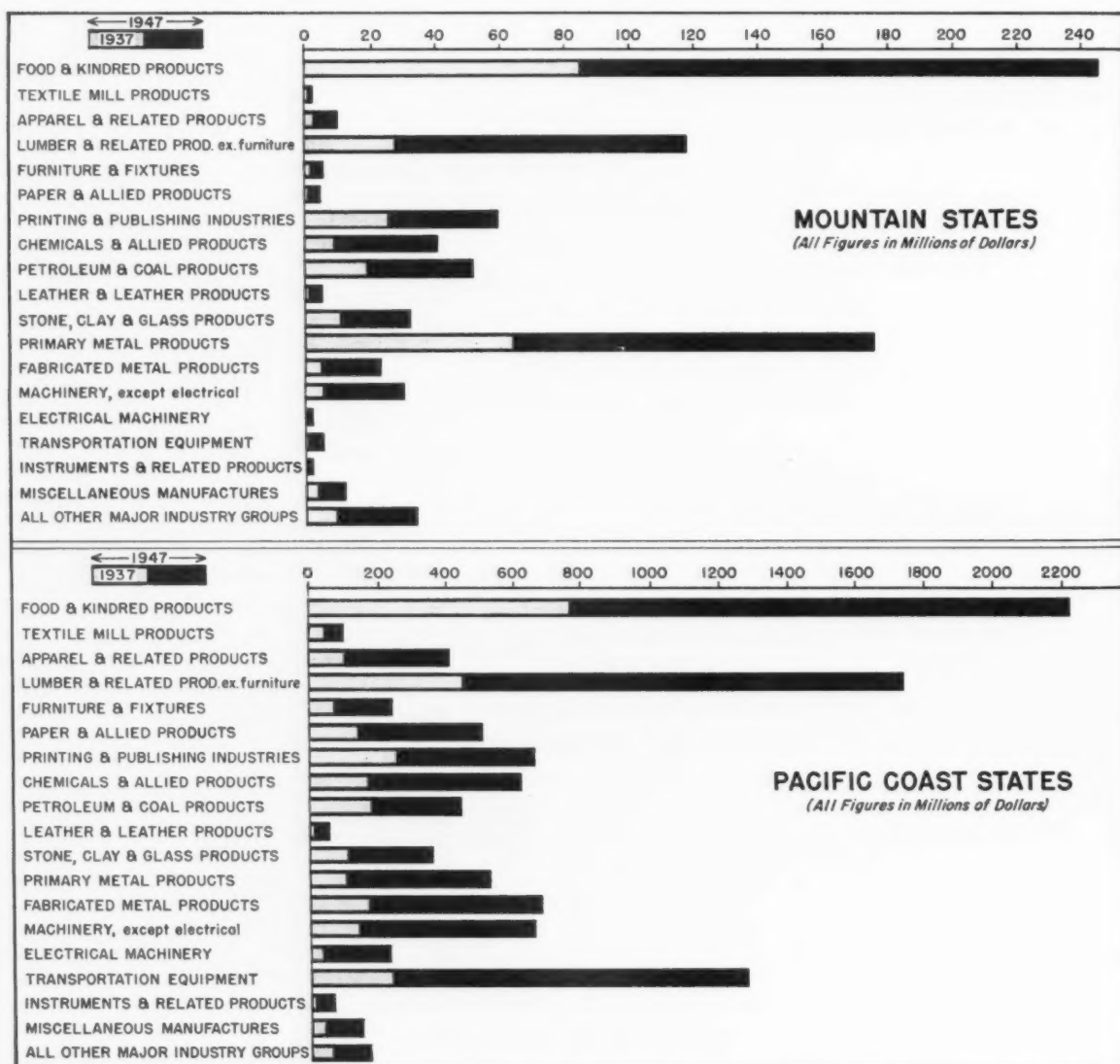
* Sample material control form developed for phonograph record manufacturers.

Period _____		YIELD CONTROL			
		COST PER STANDARD MATERIAL DOLLAR			
<u>Actual Material Cost</u>					
a	Vinylite	\$.60	X	100,000 lbs.	\$60,000.00
b	Shellac	\$.15	X	80,000 lbs.	12,000.00
c	Semiflex	\$.20	X	10,000 lbs.	2,000.00
d					
e	<u>Total Actual Material Cost - (Gross)</u>	a + b + c + d			\$74,000.00
f	Vinylite scrap, credit	\$.45	X	30,000 lbs.	\$13,500.00
g	Shellac scrap, credit	\$.05	X	14,000 lbs.	700.00
h	Semiflex scrap, credit	\$.10	X	3,000 lbs.	300.00
i					
j	<u>Total Scrap Credit</u>	f + g + h + i			\$14,500.00
k	<u>Net Material Cost (Actual)</u>	e - j			\$59,500.00
<u>Standard Material Cost</u>					
l	16 inch Vinylite records	\$.330	X	75,000 records	\$24,750.00
m	12 inch Vinylite records	.265	X	30,000 records	7,950.00
n	10 inch Vinylite records	.185	X	10,000 records	1,850.00
o	12 inch Shellac records	.092	X	30,000 records	2,760.00
p	10 inch Shellac records	.075	X	40,000 records	3,000.00
q	12 inch Semiflex records	.100	X	10,000 records	1,000.00
r	10 inch Semiflex records	.085	X	15,000 records	1,275.00
s					
t					
u	<u>Total Standard Material Cost</u>	l + m + n + o + p + q + r + s + t			\$42,585.00
v	ACTUAL COST PER STANDARD MATERIAL DOLLAR		k/u		\$ 1.40

MARCH OF THE WEST

West's Big 7-Year Industrial Growth Revealed by Census

CENSUS OF MANUFACTURES BY INDUSTRY GROUP



PACIFIC STATES

Figures on the increase in manufacturing output in the West between 1939 and 1947 are revealed in the preliminary 1947 census of manufactures.

They show that the value added by manufacture in the Pacific states amounted to \$5.5 billion in 1947, as compared with \$1.5 billion in 1939, an increase of about 260 per cent. By comparison, value added by manufacture for the country as a whole increased approximately 200 per cent during this same period. Value added is the amount by which the value of shipments exceeds the cost of materials and supplies.

Manufacturing establishments in the Pacific states reported employment of 745,000 production workers during 1947. This is an increase of about 80 per cent over the 411,000 production workers reported for 1939.

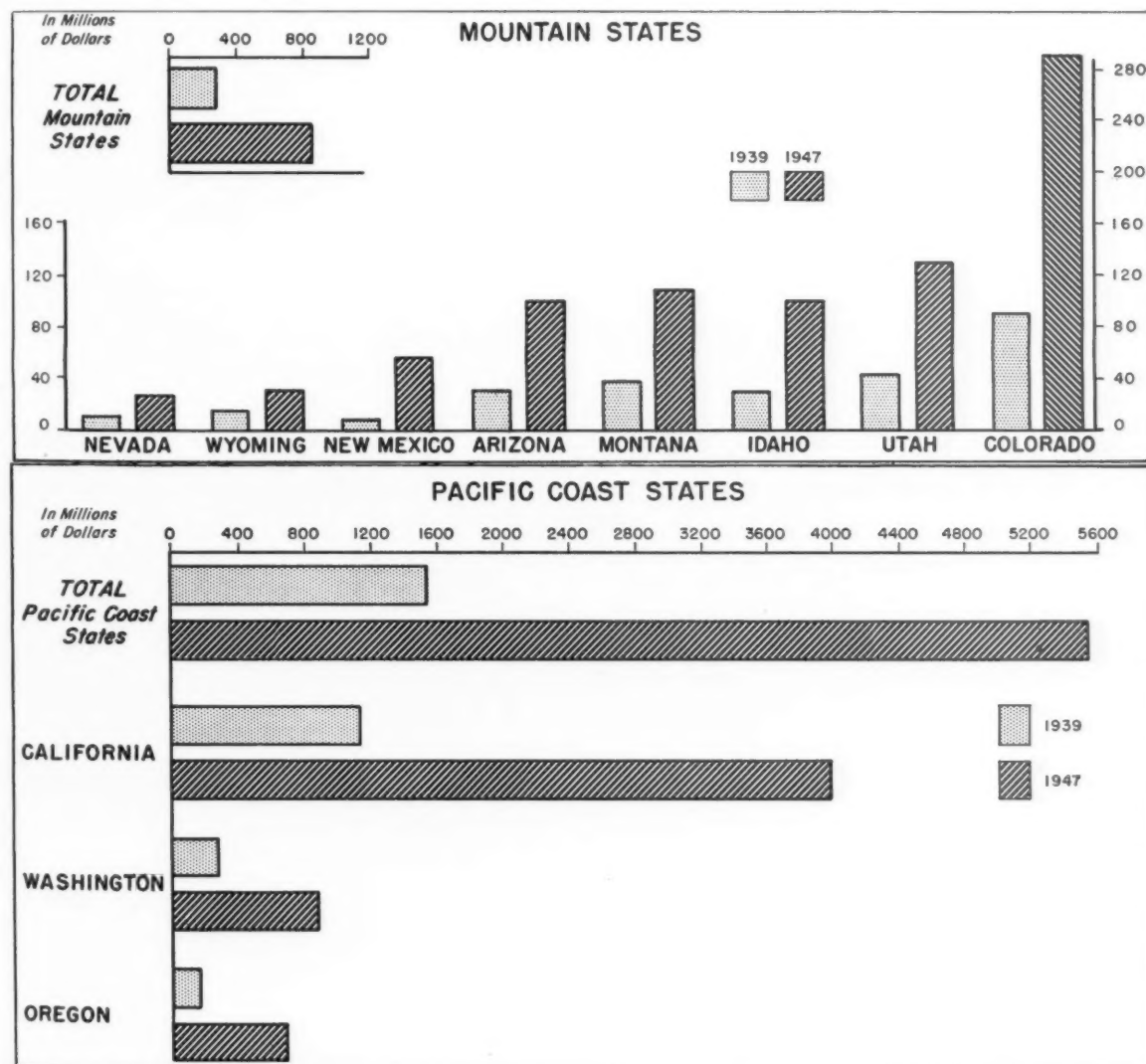
MOUNTAIN STATES

Gain in value added by manufacture in the Mountain states was from \$269,000,000 in 1939 to \$855,000,000 in 1947, an increase of approximately 215 per cent. Comparing again with the nation's average of 200 per cent increase, a healthy Western and Mountain states region is indicated.

Manufacturing establishments in the Mountain states reported employment of 120,000 production workers during 1947. This is an increase of almost 80 per cent over the 67,000 production workers reported for 1939, when the last Census of Manufactures was taken.

The number of factories covered in the mountain states was 5,000 in 1947 as compared with 4,000 in 1939. In the Pacific states, 24,000 factories were covered in 1947 as compared with 16,000 in 1939.

CENSUS OF MANUFACTURES BY VALUE OF PRODUCTION



Lab Decentralization Affords Better Quality, More Control

Golden State Company launches new program for product quality control

GOLDEN State Company, Ltd., has during the past 18 months developed a quality control program for its products which is proving remarkably successful. Although the company's previous quality control procedure had adequately served to determine and maintain the high quality products for which it is noted, numerous details in its functioning did not lend themselves well to the decentralized type of management by which the company operates.

Prior to 18 months ago, Golden State's quality control operated primarily through a large central control laboratory located in San Francisco. This central laboratory was staffed with highly trained chemists and bacteriologists who continually analyzed and tested samples sent in daily from each of the manufacturing plants. Reports were made back to the plants on the grading of these products, such grading frequently being in the nature of final acceptance or rejection of a particular lot or batch before sale. This was primarily true in the case of nonperishable products such as powdered milk, evaporated milk, and butter.

Plant laboratories supplement the central control laboratory. However, plant laboratories served mainly to make those tests necessary to locate a source of difficulty in plant operations, plus the more critical analyses on a product which experience had shown were most likely to be the reason for down-grading or rejection by the central laboratory.

Numerous difficulties were encountered under a procedure whereby product testing was conducted by a central laboratory, due primarily to the time interval between time of manufacture and time the final report was sent back to the plant. On occasion a plant would manufacture large quantities of a prod-

uct which would have to be held, or fulfillment of an order delayed until the central laboratory report was received. Also a plant could unknowingly manufacture considerable amounts of a product which days later might be rejected at a financial loss, whereas an immediate analysis and report would have enabled the plant to change its operation quickly before such a large amount of reject product had been accumulated.

Attempts were made to lessen this time interval. For example, a special "sample carrier" was hired, whose duty was to drive between the plants and central laboratory in order to obtain the quickest possible sample delivery. Furthermore, central laboratory tests were then teletyped back to the plants as

DR. A. P. STEWART
Research Administrator, Golden State
Company, Ltd.



DR. A. P. STEWART

soon as analyses were completed. Although this was an expensive procedure, it did improve the time situation.

Then 18 months ago a quality control program was established which since that time has solved many of the difficulties encountered under the old system. This program had three main points:

1. A quality control manager was selected, who was given responsibility and authority to operate all phases of Quality Control. Key authority provided was: "The quality control manager's decision regarding product quality is final."

2. Plant laboratories were strengthened, both in personnel and equipment, whereby all tests on the products manufactured by the plants could be made for determining quality.

3. Central laboratory in San Francisco was correspondingly reduced in size and reliance placed on plant laboratory testing. Specialists were maintained in the central laboratory for making regular and frequent visits to plant laboratories to standardize analytical methods, to train personnel, and to aid in general plant laboratory operation.

From the above three-point program a successful Quality Control operation has resulted, but only after much hard work and through excellent cooperation maintained among the members of Quality Control, Production and Sales.

Quality Control has become almost an organization. As the head of the group, the quality control manager sees that plant laboratories operate properly through his traveling staff of laboratory inspectors and by careful selection of plant laboratory personnel. The quality control manager establishes the kind of tests, number of samples examined, records maintained and method of reporting results by each plant laboratory in

order to provide a proper basis of determining quality.

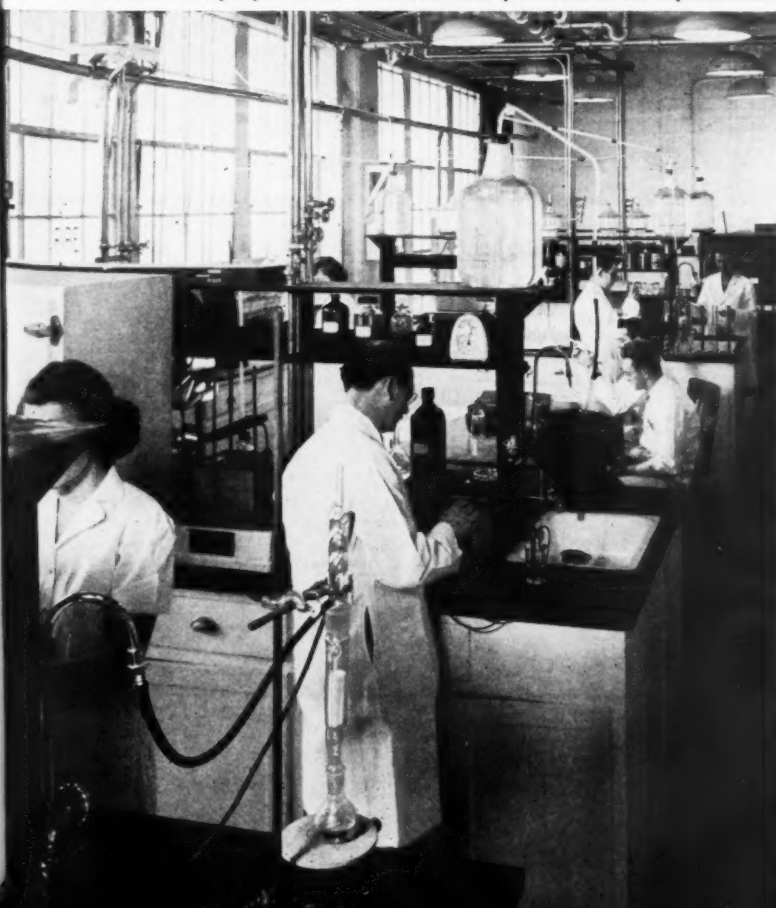
In the interests of expediency, the quality control manager allows the head of each plant laboratory to make decisions for him, which are in the form of a report turned in daily by the plant laboratory foreman to the plant manager. Thus the plant manager is able to have an immediate acceptance of products manufactured and, if rejected or degraded, make necessary processing adjustments quickly.

As a basis for determining acceptability of a product, definite quality specifications have been established for each product. For this purpose a committee was established consisting of the quality control manager, research director, production manager, and sales manager. Specifications were drawn up by the quality control manager and approved or modified by committee action. Thus, production knew exactly the type of product it was required to make. Sales knew the quality of product to represent to its customers. And Quality Control had a definite basis for accepting or rejecting products and could establish those testing procedures necessary to determine the ability of products to meet specifications.



• One of the individual plant laboratories at Loleta which speeds up quality control.

• Golden State Company's central control, constantly on the alert for improvements.



With a rigid set of specifications for each product, in most instances the plant laboratory foreman would have no difficulty in deciding from his tests whether or not to approve a given lot or batch for shipment and sale. However, on occasion a particular lot or batch would fall in the doubtful class, because of unusual circumstances. On such occasions, when the plant laboratory man did not choose to take responsibility for deciding grade or disposition of the product, the quality control manager would properly be asked to render the decision directly.

In addition to maintaining a staff of traveling laboratory inspectors, the central laboratory has other important duties which contribute to the success of the quality control program. One of these duties is to develop new and improved testing methods which are given to the plant laboratories.

Another duty of the central laboratory is to test periodically duplicate samples of products tested in the plant laboratories. This periodic testing of duplicate samples serves as an additional check on the plant laboratories' operation. However, in order to minimize sample testing by the central laboratory, when two or more plants

Functional authority of the quality control manager over operation of plant laboratories, including selection of per-



* As milk is delivered to the plant its temperature is immediately taken. This step, a highly critical factor in quality control is made and recorded by the Brown Instrument Co.'s recording thermometer, shown against the wall in the background.

sonnel, could easily have become a source of difficulty with the additional responsibility of the plant laboratory to the plant manager. Also the frequent inspections made of the plant laboratories could easily have been considered as "snooping" by regular plant employees. The fact that the program has progressed without difficulty in these respects can be attributed to: (a) a definite assignment by executive management of duty and authority; (b) a

quality control program which "did something" to improve overall operation; (c) careful selection of both plant laboratory personnel and inspectors from the central laboratory who were respected for their ability and judgment as well as their good personalities; (d) detailed specifications for all products which were established after approval by a committee representing quality control, research, production, and sales.

ENCLOSURE

GOLDEN STATE COMPANY, LTD.
LABORATORY REPORT MARKET MILK PRODUCT QUALITY

PLANT: _____ DATE EXAMINED: _____

Product	Type of Pkg.	Date of Mfg.	Code	Net Wt. or Vol.	Con- tainer Appear- ance	Cream Line	Color	Skim Line	Plug	Sed- iment	Body	Fat	Flavor		Phos- pha- tase	Cali- form	Std. Count
													Score	Criticism			
Buttermilk Acidity				Canwasher Alkalinity					Sterilizing Sol.		p.p.m.	Sterility Tests		Std. Count			
Homo. Index				Bottles				Tank 1	Bottles:			Cans 1.					
												2.					
Cold Room Temp.								Tank 2	Equipment			Bottles: 1/2 pt.					
								Tank 3				pt.					
												qt.					

Notes:

Reported By: _____ Date: _____

O. K. By _____ Date: _____

O. K. By _____ Date: _____

How to Bend REVERE COPPER WATER TUBE For Radiant Panel Heating



FORM your radiant heating coils on a temporary bench right on the job—it's easy! Just nail to the top of the bench narrow wood guide strips far enough apart to fit the tube and with the pairs spaced for the desired tube spacing in the panel. Then nail wood templates in place, properly lined-up for making return bends and located to produce the required over-all length of the coil.

The 60-foot coils of soft temper Revere Copper Water Tube can then be unrolled between the guide strips and around the templates to make sinuous coils.

Wherever possible make all soldered joints including headers right on the bench. After the coils are formed, it is an easy matter to lift them into position on the ceiling by means of a simple wooden jig which is temporarily fastened in place until the copper tube has been fastened to supporting members in a sufficient number of places to permit the frame to be removed.

In cases where the radii of the return bends are so short that there is danger of the copper tube collapsing during the bending operation, metal sheaves which support the tube wall around its entire circumference should be used in place of the wood discs. A metal handle having two pins for holding the sheaves in proper relation will be necessary for making the bends.

Other Revere materials include Red-Brass Pipe; Sheet Copper and Herculoy for tanks, ducts, pans and trays; Dryseal Copper Refrigeration Tube (dehydrated and sealed); Copper oil burner, heat control and capillary tubes. All are handled by Revere Distributors in all parts of the country. The Revere Technical Advisory Service is always ready to serve you. Call your Revere Distributor. **REMEMBER**—Trouble always costs more than Revere Copper Water Tube.

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• • •

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In the Good Old Summer Time Watch Your Safety Program

SUMMER safety problems have arrived. Many industries are so busy cramming bulletin boards and company publications with generally unheeded warnings against hazardous vacation pursuits, sunburn, fast driving, that their own plant safety problems may be neglected.

Danger Points

Not to be neglected is the fact that rising summer temperatures bring increased resistance to wearing goggles and protective equipment. Temperature increases, fatigue periods become apparent earlier and last longer. Heat and exhaustion may be due, partly at least, to conditions off the job. More dust and foreign bodies are blown about. Eyes are in danger. Ice water takes its toll. Excessive quantities of salt tablets bring stomach distress.

Fires

Plants are endangered by spontaneous combustion, unclean electric motors, oily rags, dry grass. Direct hazards to the plant itself are generally forgotten by company information mediums.

The difference between an ordinary watchman and a well-trained guard is often the difference between disaster and safety. This fire illustrates the point: LOSS \$1,000,000: (California cotton warehouse).

To prevent freezing, sprinklers were temporarily discontinued in metal-clad warehouse containing cotton bales. Watchman, unaware of this condition, had not been instructed to open valves in case of fire. Following discovery of a small blaze, he found sprinkler control valves closed, but did not open them. When apparatus arrived, (after 15 minutes) fire was beyond control. Yard hydrants were also without water, but no one had checked to determine cause.

Guards trained in fire prevention and use of emergency fire equipment are an

By **HARRY HUNTER**
Director of Safety and Engineering
General Plant Protection Company
Los Angeles

absolute economic necessity. Another striking example of watchman failure. A trained guard could have prevented this incident: LOSS \$410,000: (Texas cotton warehouse).

Sprinkler shut off in eight adjoining warehouses. Watchman did not know

of this. Also did not know how to open valves. Fire was confined to two bales when discovered. Watchman first attacked fire with pails of water, pulled fire alarm box (not the nearest), did not open sprinkle valve, close fire doors between warehouses, or go to gate to direct fire apparatus. Flames advanced through open doors and were beyond control when firemen arrived.

• How not to do it. Here is a prime example of a workman looking for trouble. With no shield on the grinder and no goggles on himself, he is a good candidate for the hospital and a customer for the eye bank. Photo courtesy National Safety Council.



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"BUT QUICK!"**



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PARROT SILENCER**

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We'll pay off to a degree for
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REGIONAL REVIEWS

Tehachapi to Tijuana

Aluminum Factory-Built 4,000 lb. Two Bedroom Houses in Production

Home construction costs drop 10% in 60 days, still going down; Foreign trade zone authorized; Navy may close Treasure Island.

LOS ANGELES.—In a former war plant in the suburbs of Los Angeles, Southern California Homes, Inc., is launching a product that will bear watching because of its implications for western light metal industries.

The product is a "manufactured" aluminum home. It is assembled from sandwich-like panels, to be known as "lumicomb," consisting of two sheets of aluminum separated by a honeycomb of resin-coated heavy paper, doubled back and forth accordion-like to form a stiff unit, two inches thick. These sections are bolted together to form walls and sloping roof.

Because of the light weight, no roof trusses are needed, the whole structure being self-supporting. In fact, say the builders, a two-bedroom house weighs but 4,000 pounds—a small fraction of the tonnage of a conventional home—and can safely be erected on fills where deep piers ordinarily would be necessary.

This radical innovation, whose architectural plan was designed by Henry Dreyfus, goes back to early war-time experiments with housing suited to quick erection in advance bases, in the Arctic and the tropics. The company is headed by Reginald S. Fleet, former

director of Consolidated Aircraft. Aircraft techniques of light construction designed for great strength have been adopted, the sections being fabricated with the aid of a huge press built specially for the purpose.

The company ordinarily prefers to do erection work itself, although an oil company which bought some of the houses for company housing in Venezuela sent a crew of its own men to learn how to assemble the structures. For more than a week they practiced, putting a house together, then taking it apart again, before embarking for South America with a plane-load of the knocked-down buildings.

Retail price of the two-bedroom home will be about \$8200 and a three-bedroom model will sell for \$9500—\$1000 down and about \$46 a month. Insurance rates of course will be very low. Well-to-do southern Californians find the aluminum house well suited to vacation use, at the beach or particularly in mountain resorts, where transportation and labor costs reportedly make a comfortable cabin cost \$15,000 and up.

Dame Rumor

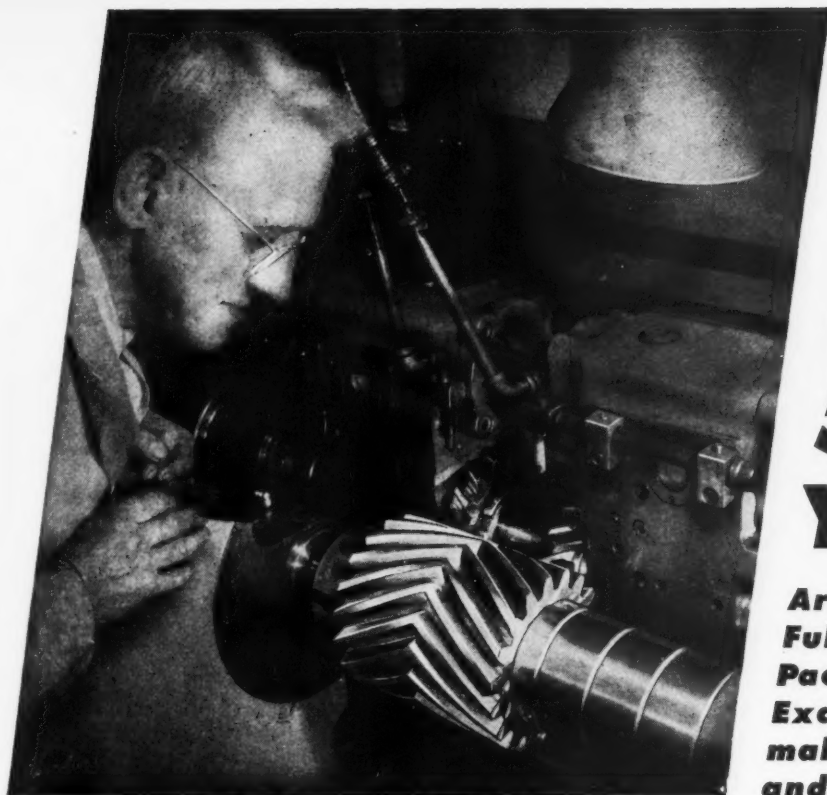
Rumors are that FHA has approved the metal homes for loans and that RFC has given backing for manufacturing them. Capacity of the plant currently is four homes per day, but this rate is expected to grow several-fold through additions scheduled for the months ahead.

Immediate effect of the aluminum home on the construction industry here is not expected to be perceptible, but other factors are bringing noticeable changes in the local building picture.

(Continued on Page 50)

• L. A. Merchants and Manufacturers Asso. recently organized a plant visitation program designed to showcase local businesses and industries. Shown below on the "pilot" plant visit to Thompson Products, Inc., are, left to right: Keith Ryan, Day and Night Mfg. Co., Harry Goldman and Ben Breslow, of Utility Appliance Co., looking over huge diesel motor valves pointed out by Charles McKeand, an M. & M. director.





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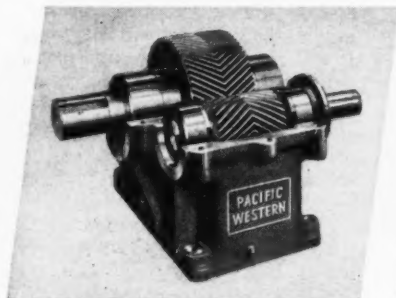
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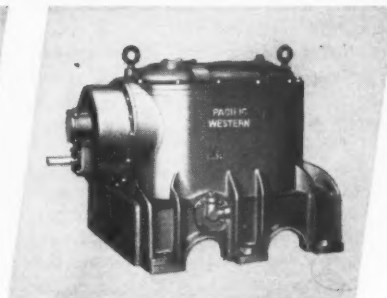
FAST DELIVERY ON MANY POPULAR TYPES AND SIZES OF SPEED REDUCERS FROM STOCK



Single-Reduction Speed Reducer



Right-Angle Speed Reducer



Vertical Speed Reducer

L. A. REVIEW

(Continued from Page 48)

Mechanics' liens have increased sharply. Some contractors are in a delicate financial position as result of slow sales of units already built. Financing is more difficult; fewer prospects can meet loan criteria. Result is a sharp decline in residential building since last fall's peak.

10% Construction Drop

Meanwhile, FHA estimates home construction costs have dropped 10 per cent in this area within the past 60 days—and are still dropping. Most of the decline is attributed to subcontract work, where profits are being slashed to normal, competitive figures. Plumbing in the average house today now costs about \$650; a year ago it was \$950 to \$1000.

FHA officials say some tract developers are getting loan commitments financing homes that will sell for no more than the mortgage on older units in the same tract. Premiums ranging from metal sinks and stoves to refrigerators and television sets are being given away with some houses, even those sold with no money down.

Shortage?

This situation comes sharply into focus at the very time when the Security-First National Bank's economists are estimating that 240,000 dwellings have been completed in Los Angeles County since the Japanese surrender, or enough to house about 740,000 persons. During the same period, they say, increase in the county's population has been only about 500,000, with the result that housing has overtaken growth to the extent of additional accommodations for 240,000 people.

Deep Thinking

Assuming that no shortage would exist if the number of dwelling units per thousand persons were the same as it was in 1940, the bank puts the shortage currently at somewhat less than 40,000 units. Homes now under construction represent about 40 per cent of that number. Thus, at the present rate, the economists conclude that the shortage, in terms of 1940 relationships, would be eliminated in about a year.

Like other prophets, the bank's experts have had their timetable set back several times by such factors as refusal of the war-time Westward migration to slacken as expected. Their figures also neglect the fact that although before the war there was a good deal of sub-standard housing in Los Angeles which ought to be torn down, war and post-

war conditions brought innumerable shacks, chicken coops, and structures built of orange crates, into the housing picture.

Other Factors

But other present factors may help fulfill the bank's estimates. Construction for rent doubtless has tapered off because of Congressional delay in passing a bill calling for renewal of FHA authority to finance multiple housing developments. Some would-be builders have not applied for permits at this late date because of uncertainty that the necessary Senate bill would pass.

Meanwhile, the industry's "economy house" program has 2,000 units started and another 2,000 scheduled to begin shortly, all of them in the "none to \$500" downpayment category, with monthly payments of \$50 or less. By 15 "changes" in specifications, FHA has sanctioned leaving out enough features to bring the economy homes within range of the wage earner making \$225 to \$250 a month.

These factors, plus slightly declining building costs, may serve to bolster production enough to make the bank's prediction come true. If it does, the population of Los Angeles will heave the greatest collective sigh of relief ever heard west of the Rockies.

Foreign Trade Zone

Local boosters are jubilant over the proposed foreign trade zone which has just received authorization from the Commerce Department. Not to be outdone by San Francisco, Los Angeles hopes its new facilities will stimulate export-import trade by local firms which will store cargoes in the eight-acre zone for rehandling, repackaging, or otherwise processing for reshipment abroad without actually bringing them into the legal limits of the United States, thus saving customs duties.

Such "wholesaling" will permit distribution in foreign or intercoastal trade in lots which are expected, in actual operation, to average about 20 tons. The zone thus may provide considerable employment and develop a good many by-product activities for this area.

Terrific Traffic

During Foreign-Trade Week, local boosters also pointed with pride to imports which in 1948 totaled \$150,000,000, and to traffic growth which in the first three months of this year showed an 80 per cent increase in rail cars unloaded here for export, as compared with last year's rate, while other West Coast ports were showing slumps amounting to as much as 60 per cent.

Now Hear This

Not so good news, however, was a scheduled cutback of more than 1,500 in employment at the Navy's Terminal Island yard, resulting from appropriation cuts and increasing wage and construction costs. More disquieting still were gloomy hints from the Navy that it may have to close its \$180,000,000 yard entirely because of the continued sinking on Terminal Island. Already commercial firms in the area have had to spend huge sums to dike their plants and the sagging Ford Avenue bridge, key link in the main traffic artery to the island, was jacked up to offset the sinking.

Silver Lining

If the aforementioned dark cloud on the harbor horizon is caused, as some people believe, by a subsidence resulting from withdrawal of so much oil from beneath the harbor's tidal flats, it has had a silver lining. Despite the losses resulting from a three-month paralysis of traffic brought on by last fall's waterfront strike, the Los Angeles port's revenues actually showed a slight net increase, while its adjoining twin, Long Beach Harbor, continued to enjoy a golden flood from the hundreds of wells owned by that city's harbor department.

Loss of the Navy Yard, however, would cost about 6,000 jobs, at a time when the shipbuilding and repair industry is coasting on a meager backlog with no new contracts pending, and unemployment of American seamen is growing because of increasing foreign registry of American ships.

Trend Reversal

Neat reversal of a trend common here since 1945 was noted when a newly arrived plant announced it will partially "reconvert" from kitchen gadget manufacturing to military products. Metal Textile Corporation of Roselle, N.J., acquired a site here and simultaneously launched plans for manufacture of metal and asbestos heat-insulating blankets for jet aircraft engines. It will also continue to make pot and pan scouring pads. The Chamber of Commerce, which boosted the move along, termed it a "wise selection, by a manufacturer, of Los Angeles as a plant location from which he can give better service to the Western customer."

Southern California pride, already tender from the indignities of a highly "unusual" snowstorm last winter, has just welcomed ending of its longest

(Continued on Page 52)



NOW AVAILABLE . . . this New, Complete Guide for Users of Industrial Chemicals

Once again General Chemical offers its outstanding Products Book . . . an invaluable reference and guide for every buyer of industrial chemicals and those who direct their use in research and manufacture.

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July, 1949—WESTERN INDUSTRY



experience looms large

WHEN WESTERN INDUSTRY BUYS CONVEYING EQUIPMENT

Experience is a big factor in the designing of conveying equipment for handling light or heavy materials. There is no place for trial and error methods. Conveyers, like other production machinery, should be designed and built to do the job required.

The energy of Mathews Engineers is directed to the problems of light and heavy industry—to handling loads weighing as much as 50,000# or as little as a few ounces. These Engineers have acquired years of experience in designing power and gravity conveyers and special conveying machinery. This experience, and the facilities of a new modern plant, are available to the light and heavy industry of the western states. Plant Engineers responsible for efficient materials handling know that this experience represents real economy, and that it is the well-designed conveyor system that costs less in the long run.



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CANADIAN DIVISION Mathews Conveyor Company, Ltd.
PORT HOPE, ONTARIO

Engineering Offices or Sales Agencies in Principal American and Canadian Cities

L. A. REVIEW

(Continued from Page 50)

season of importing Florida fruits and vegetables. Although this arrangement has been going on more or less secretly for years, unheralded by any trumpet-blowing, the frost havoc wrought by last winter's freeze has brought an unprecedented flow of motor trucks and refrigerated trailers bringing west-bound cargoes of bell peppers, egg-plant, sweet corn, squash, and green beans. On the return trip, of course, the trucks take lettuce, carrots, and other California produce for Florida distribution.

Dry Spring

Strangely, Antelope Valley, where the aircraft industry is beginning to throw out small tentacles looking forward to possible expansion of test work in the sparsely settled desert, is facing a dry spring which threatens what looked like a bumper crop of wheat. The heavy snows had brought forecasts of an all-time record harvest, but spring rains were not forthcoming and farmers are worrying. Meanwhile, Los Angeles County is laying its plans for exploitation of the airport facilities it acquired from war surplus, hoping to stimulate development of various aircraft service industries and to encourage major companies to use the facilities.

While Arizona and Nevada this year have felt the effect of a much reduced tourist trade, lately so large a factor in business prosperity, new resources may be tapped to give its heavier industries new stimulus.

Zinc Oxide Process

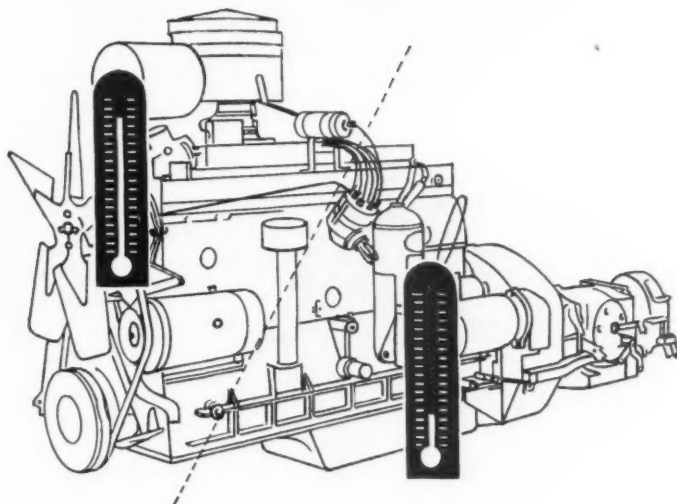
Chemists and metallurgists, ever since the fabulous days of the Comstock Lode, have sought a way of profitably treating zinc oxide ores abounding in some Nevada areas. Now the U. S. Bureau of Mines has developed what is believed a satisfactory process. It will be put into operation by the Basic Reduction Company, using facilities of the now state-owned Basic Magnesium plant. Initial capacity will be 200 tons daily. The plant is expected to be ready by mid-summer, accepting first only lead and zinc ores containing a minimum of 20 per cent metal.

Early in May, while copper was plummeting more than 5 cents a pound on world markets, representatives of the Anaconda Company signed a 90-day option of 91 claims at Tombstone, once famous as "the town too tough to die." By August 1 the copper giant must

(Continued on Page 54)

WESTERN INDUSTRY—July, 1949

hot or cold, it's always on the job



VEEDOL 100% Pennsylvania Motor Oil

Veedol Motor Oil is made exclusively from Bradford crude, the very finest of the Pennsylvania base stocks. Its extraordinary resistance to thickening or thinning due to cold starting temperatures or high running heat provides easy starting and *sure* protection for bearings, pistons and cylinder walls at *all* times.

Veedol's toughness means economy, by assuring maximum hours of service between drains. And today's Veedol is additive treated, to help keep engines clean and guard against corrosion due to oxidation. Veedol is provided in S. A. E. Grades 10 to 70, to meet the requirements of any of your gasoline engines.



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Specialists for more than 30 years in
CAP SCREWS, SET SCREWS, MILLED STUDS
Ask your jobber for Cleveland Fasteners

L. A. REVIEW

(Continued from Page 52)

make up its mind whether or not it will sponsor rebirth of the tiny mining community.

Sparking the hope is an optimistic report by a University of Arizona engineer to the U. S. Geological Survey, revealing that water conditions there are almost identical with those at Bisbee, where a remarkable comeback resulted from installation of pumping shafts.

Tombstone's development was pinched off in 1911, after nearly \$50,000,000 in mineral had been extracted, when water at the 500 to 1000-foot levels swamped the workings, despite huge steam pumps which took out as much as 7,500,000 gallons every 24 hours. Diamond drilling this summer will tell whether the prize—at fast-declining prices for the red metal—is worth applying modern big-scale pumping techniques, giving this corner of Arizona a burst of prosperity.

Meanwhile, Arizonans are hoping that the southern part of the state at last may prove up as an oil producer. A wildcat well at Willcox reportedly has encountered showings of oil and gas below the 6000-foot level.

Pike Drilling Shares Ideas

Under the incentive management and profit sharing plan, by which Thomas P. Pike Drilling Company of Los Angeles, operate their business, employees are encouraged to contribute ideas for labor saving devices and more efficient operation.

Workable suggestions are rewarded, usually, with a \$10 to \$100 bonus, in addition to their regular profit sharing in which all employees participate. In turn, Pike Drilling, after testing the value of such suggestions, shares them with other members of the industry.

Wilbanks Vaughan, Pike Drilling catheadman, recently received a \$100 bonus for the following suggestion; that a metal boxlike container be installed beneath all mud screens to gather sand from the mud system as it circulates. By thus eliminating the sand in the mixture, abrasive wear on the pumps, drillpipe, valves and fittings, has been cut down to a minimum, fewer repairs and replacements are necessary and the life of the equipment prolonged.

The system has been tried and found satisfactory on two rigs of the Pike Drilling equipment, and the company now is installing the screens as standard on all rigs.

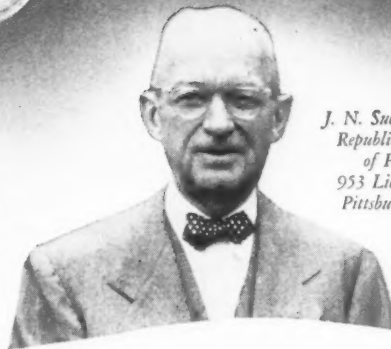
WESTERN INDUSTRY—July, 1949

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● Mr. Succop, pictured above, will tell you that from his experience price is not a good yardstick for economy. It is the long service life of conveyor belting that reduces costs. "You can save money," says Mr. Succop, "by choosing a type and grade of belt built especially to carry the material you move."

Republic Rubber constructs Record Maker belting with standard, soft woven belt duck in weights and

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REGIONAL REVIEWS

Sierras to the Sea

Eastern Manufacturers Seek Gold From Golden Western Markets

Automobile builders and others step up Western activity; Plans aired for face-lifting San Francisco Bay; Area wage study.

SAN FRANCISCO—Strange as it may seem, the slowing down of business activity from its 1948 peak has not been accompanied by a decrease in interest on the part of eastern manufacturers in establishing plants in this area.

On the other hand, there has been quite a pick-up, and it appears that the next 12 months will see some more important moves. While there has not been much recent publicity about au-

tomotive parts manufacturing, nevertheless there are indications that manufacturers of some of the more important components may establish branch plants either in northern or southern California, rather than risk losing from 10 to 15 per cent of their volume to Western manufacturers who may have their eyes on automobile parts.

There seems to be feeling also that current business would pick up if radical price reductions, say 15 per cent,

were put in effect, that industry would come back into the market and do some buying under such an inducement, whereas price cuts of only one or two percent do not have much effect.

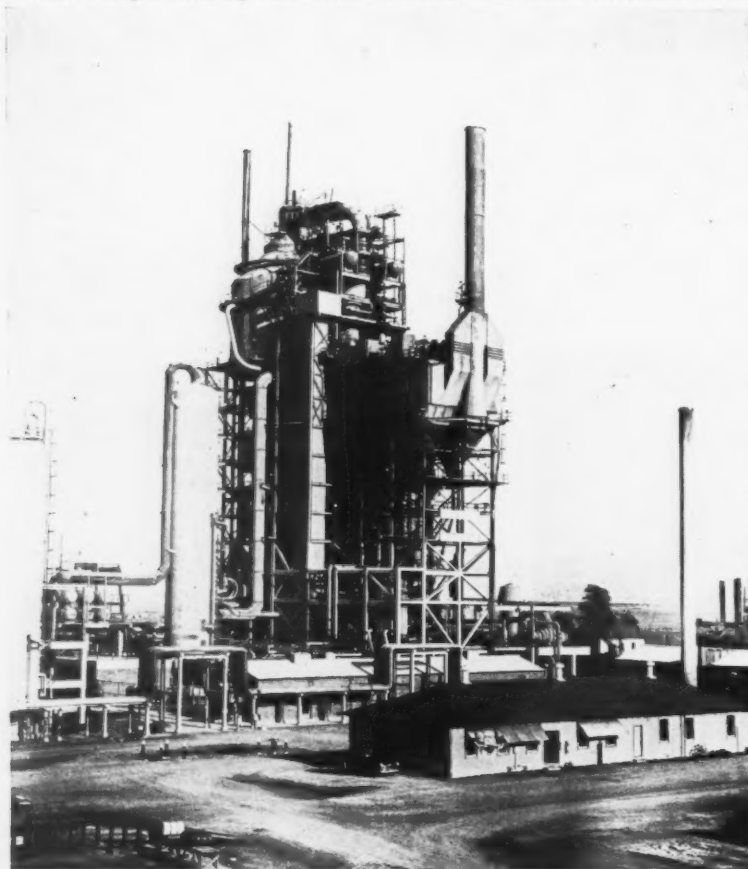
An increase in automobile assembly on the Coast is reported by the Chrysler organization, with Plymouths being assembled at the San Leandro plant, where 800 people are now employed. The assembly line is being modified to handle both Dodges and Plymouths. At the Los Angeles assembly plant Dodge models will be added to the production of Plymouths, DeSotos and Chryslers.

Renewed efforts are being made to get the government-owned aluminum reduction works at Riverbank reopened. It has been shut down since the close of the war. Although the immediate aluminum market is off, the communities interested in seeing the plant have hopes that the government could be interested in stockpiling. Two companies, Anaconda and American Smelting & Refining Co., have been reported in the past as interested in leasing or purchasing. Meetings of civic and chamber of commerce officials have been held to see what could be done to get action.

The Central Valley Empire Association, which came into existence last year and has been active in promoting San Joaquin Valley development, recently listened to arguments for and against the Reber Plan for face-lifting San Francisco Bay. Louis Fox, Don Follett and Robert Wentz, managers of the San Francisco, Oakland and Stockton chambers of commerce, objected vigorously to the Reber Plan, but urged that the whole water supply for northern and Central California be studied. No investigation has been made of the possibility of increasing the supply by drawing on the Klamath, Smith and other rivers in the extreme northern end of the state, it was pointed out by Mr. Fox.

Water supply for the East Bay cities has been recently doubled by the completion of a second aqueduct from the

• Fluid catalytic cracking unit of Avon, California. Tide Water Associated Oil Co.



Pardee Reservoir on the Mokelumne River, which brings 100,000,000 gallons daily by gravity flow. By installing booster pumps the capacity of the second aqueduct can be doubled.

Repeal of the full train crew at the last election gave the Public Utilities Commission authority to allot the number of brakemen needed for safety on freight trains, instead of having it fixed by statute, and the Commission is now holding hearings to determine just what is required. Railroad unions have complained that 800 brakemen were laid off when the so-called "featherbedding" law was repealed. The first hearing dealt with the Western Pacific, which was required under the old featherbedding law to use three brakemen on a 74-car train in the mountainous area between Keddie and Bieber. A. G. Perkins, senior transportation operations supervisor for the commission, reported that two brakemen are now being used on freights averaging 80 cars in length. He said that use of two brakemen made it impossible to give hand signals properly, nor to make proper inspections of the train while it is standing or rolling slowly.

The average Bay Area worker receives a weekly pay check of \$63.27, more than double the 1939 weekly pay check of \$30, and substantially greater than the average earnings of California workers (including those in the Los Angeles area), according to a special study of average weekly earnings of workers in the nine Bay Area counties issued by the San Francisco Bay Area Council. The average was \$63.03, as compared with \$61.09 average weekly earnings for California factory workers, and \$60.64 in Los Angeles, the State's other major industrial area. Detailed comparison is as follows, for March, 1949:

	Los Angeles		
	Bay Area	Area	State
Food	\$58.79	\$57.19	\$56.63
Textiles	56.27	53.66	52.62
Printing & Publish.	82.32	77.21	78.80
Chemicals	64.64	60.82	63.43
Petroleum	74.25	71.66	73.25
Leather	53.64	51.21	51.70
Furniture	60.03	57.82	57.74
Iron & Steel.....	63.91	61.85	62.80
Electrical Mach.....	58.56	57.12	60.19
Other Machinery....	63.02	63.52	63.20
Auto. & Equipment	66.67	65.70	66.02

The Council points out that these higher wage scales have not affected the growth of the Bay Area industrially, as it has run neck-and-neck since the war.

More than 500 San Francisco apprentices in 39 different trade classifications will receive journeymen ratings in public mass graduation ceremonies at San Francisco's Civic Auditorium July 19. Sponsored by the San Francisco Labor Management Committee, the ceremonies will mark the first such mass graduation of apprentices in the city since before the war.

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REGIONAL REVIEWS

The Pacific Northwest

Co-Op Groups of Small Timber Operators Urged to Keep Pace

Sustained yield programs necessary to provide perpetual growing crop; Government survey shows possible use of 90,000 more men.

PACIFIC NORTHWEST — If the forest products industries of the Pacific Northwest are to endure on anything like their present scale, the smaller timber owners and processors must match the sustained yield or "timber crop" programs of the big operators by forming cooperative groups of their own, according to Fred Brenne, manager of the Eugene Chamber of Commerce.

These sustained yield programs provide a perpetual crop of growing timber which the big operators can process in their own mills, he points out, but the rest of the industry cannot develop any stable source of supply if it remains disorganized. The situation now being faced is typified in the results of a recent mill survey in Lane County, Oregon, as follows:

Only two out of 238 mills were on a permanent production basis, although in 1947 this county harvested more timber than any other county in the United States.

Three mills thought they might be able to operate on a permanent basis.

Forty-eight said they were "long-term operations."

Eleven mills expected to run from five to ten years.

134 mills might last from one to four years.

Forty had so little timber in sight they expected to be finished within a year.

"The 90 mills in the same county in 1940 did not use up the annual growth," says Mr. Brenne, "but the addition of 148 mills, chiefly short term, now creates a forest depletion of twice the growth and menaces the stability of the entire industry in the county."

"Admittedly these new mills have no future. Without forest resources of their own, they contribute no timber growth and can exist only at the expense of reducing the over-all supply. The sawmill capacity of many other lumber centers in the West frequently exceeds the total sustained growth capacity of adjacent public and private forests under present standards of utilization."

One form of cooperation that he suggests is with the major company in the area. One large organization operating on a sustained yield basis, he reports, has increased its utilization to a point where it now sub-contracts logging to a larger number of small operators than ever before.

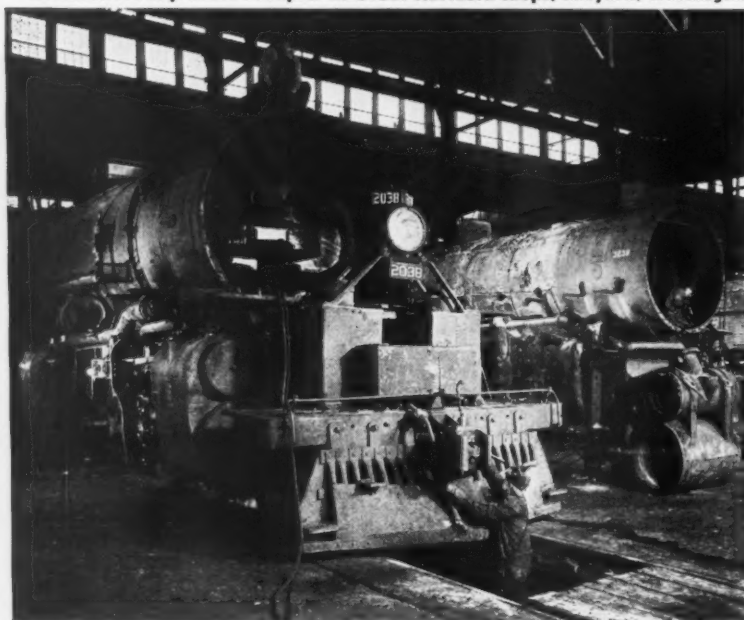
Another form is the cooperation of small interests, pooling timber and plants, hiring a competent supervisor or consultant and dividing the proceeds. One of the necessities of such a set-up would be different types of manufacturing plants, so that all the timber can be processed to secure the highest value from each type of raw material.

An Example

An example of more complete wood use is that of a company operating on a cooperative sustained yield basis which recently added a fibre board plant. This plant produced some 200 carloads of material in its first year, operating solely on by-products which were formerly unused, or of no value except for fuel. This extra plant now provides year-round work for 330 men without cutting a single extra tree.

A recent government survey estimates that full utilization of timber in the Douglas fir region of the Pacific Northwest could employ 90,000 more men. This is based on recovery of wood in thinnings, in the use of culls, in more intensive manufacturing of finished products and in refinement in pulp processing.

• Locomotives in process of repair at Great Northern shops, Hillyard, Washington.



Where logging employs 3.4 men for a given unit of logs, conversion into rough lumber adds 3.7 men, but better utilization for paper could add 11 men and employ about 12.5 men to the original number of loggers. But these high utilization plants are expensive, Mr. Brenne points out, and cannot be built by temporary owner-operators.

The Union Pacific has had another setback in its attempt to provide such low rates on petroleum products from Salt Lake to points in Idaho, Montana, Oregon and Washington that Standard Oil will find it unnecessary to build a pipeline from its new Salt Lake refinery to the Northwest. The Interstate Commerce Commission, which on April 4 suspended the trainload rates, now has suspended a second set of rates for single carload shipments. Meanwhile it is conducting an investigation of the rate situation.

Truck and barge lines in the Pacific Northwest who have been hauling petroleum and petroleum products to the Inland Empire from Portland were the complainants against Union Pacific. The railroad says that if Standards builds a pipeline, the traffic will be lost for all time to both the railroad and other forms of for-hire transportation.

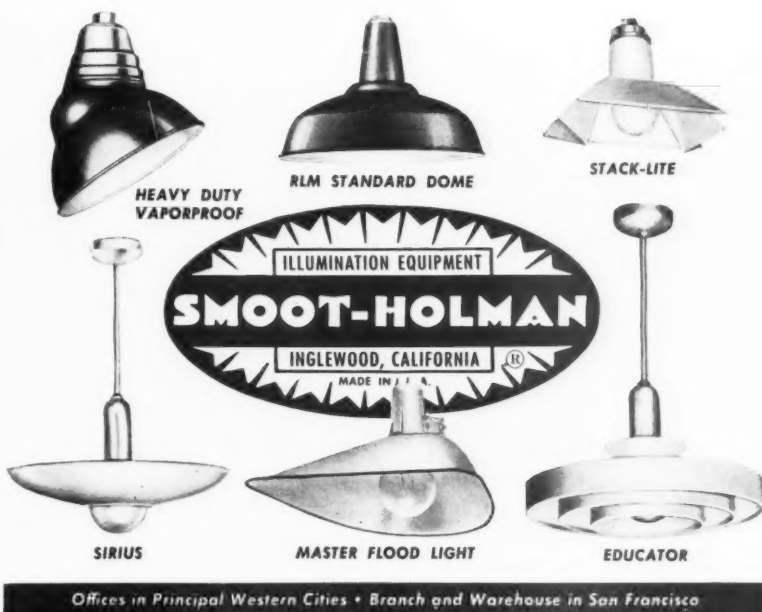
Montana Power Co. is endeavoring to fight off invasion of its territory by Bonneville Power Administration. Bonneville is asking Congress for \$2,702,000 to start construction of a line from Spokane to Kerr and Anaconda in Montana, and for \$598,000 for another line from Hungry Horse Dam to Kerr.

J. E. Corette, Jr., vice president of the power company, told a senate subcommittee on appropriations that these lines would ultimately cost \$33,000,000 and would be merely the beginning of an extensive federally owned transmission system in Montana. He said that the territory to be served already had an ample supply of power. Paul J. Raver, Bonneville administrator, asserted that engineers of the Montana Power Company, in cooperation with Bonneville engineers, reported last year that the two lines should be constructed.

Canned salmon from the United States is too high priced a food for European countries to purchase in their ECA programs, Representative Walter Norblad of Oregon has been advised by Paul Hoffman, ECA administrator. Norblad had asked reconsideration of a \$7,150,000 purchase of canned salmon by the United Kingdom. He also reported that following publication in Eastern newspapers of his protest, he received several letters from individuals objecting to the high price of U. S. canned salmon.



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REGIONAL REVIEWS

Continental Divide

Rocky Mountain Region Becoming Increasingly Industrialized

Between business, tourists, and airlines operations, prosperity looks to be in full swing with no serious drop in immediate sight.

DENVER—One of the most pronounced trends in industrial developments of the Rocky Mountain area is the current Arkansas Valley upswing centering at Pueblo, Colorado. It isn't just in the steel city, but in a vast area extending up and down the river and also up and down the front range of the Rockies north and south from Pueblo.

Pueblo itself is busy as a bird dog with its big Minnequa plant of Colorado Fuel & Iron Company, always Colorado's biggest industrial payroll and getting bigger year by year. In addition, the new Triplex Corporation piston plant now is getting into production that will reach its maximum output of 8,-

000,000 aluminum pistons a year within another 12 months. Most of the pistons are for Ford and other big motor car manufacturers rather than for sale as replacement parts. Using a dozen buildings of the war-born Pueblo Air Base, the Triplex plant is one most visitors to the city would never notice at all. Several other promising industries are developing at the old air base and elsewhere in Pueblo proper.

A few miles up the shallow Arkansas from Pueblo is the huge Portland plant of the Ideal Cement Company, where a handful of men are turning out unheard-of quantities of cement in an operation that is practically automatic. Another 10 miles and the famous fruit

orchards of the Florence area all but conceal the coal mines and oil wells that have stabilized the economy of the district for many years.

Canyon City, just beyond at the mouth of the Royal Gorge, now is getting adjusted to a string of new small industries attracted in a recent campaign. At the other end of the canyon that has become one of the West's greatest tourist attractions is Salida, railroad junction point and center of many small but flourishing industrial activities. Leadville, glamorous kingpin of the early gold mining camps and center of much lead-zinc mining today, continues on its unhurried way with the nearby Climax Molybdenum mine pouring its huge payroll into the town's cash registers.

Or go down the Arkansas toward Kansas from Pueblo, and you'll find not just an agricultural wonderland but also industrial growth. Latest of these is the new truck body factory at Lamar, being built by Midwest Works, Inc., a Kansas company, to provide beet beds, wheat beds, custom jobs—all sorts of specialized bodies for trucks.

Go-Getters

South of Pueblo is Walsenburg, Aguilar and Trinidad — coal mining country that recently copped some headlines by organizing to fight for a synthetic fuels plant. Somewhere in that area there is oil, too; at least the Colorado Fuel & Iron Corporation which long ago acquired several huge Mexican land grants is having those lands tested by various large oil companies on deals that may open up something new.

Masculine Pueblo's feminine neighbor to the north is beautiful Colorado

• A Noble batching plant, powered by G-E electric drive located near the aggregate pile at the Granby Pumping Plant site of the Colorado Big Thompson project.



Springs, enjoying its usual summer rush of tourists to the Pike's Peak country but taking these fair-weather visitors with a new bit of perspective. Industry has found the Pike's Peak area, and new plants are being put up all over the place.

Beautiful Broadmoor

As the very rich discovered long ago, life is at its best in the Broadmoor-Colorado Springs area, and now canny industrialists are finding that they might as well settle down and live there and give their employees the same break. When a Denver real estate firm building 250 houses in Colorado Springs primarily for Nestle's Chocolate employees was told Nestle's plans for the move west weren't progressing as fast as had been hoped, the real estate company's men just grinned and said it wouldn't matter, plenty of other people want the houses.

Flying Freight Cars

A lot of formerly out-of-the-way places in the mountain states now are within half an hour or an hour of a major supply point like Denver, Albuquerque, Salt Lake City or Billings. What this means to passengers is pretty well known, but a greater measure of its significance is seen in the new speed with which freight and express is handled.

On a feeder line flight last month from Salt Lake City to Casper and Billings, we noticed some of the heavy stuff taken to formerly isolated Kemmerer and Riverton, Wyoming. Parts for oil drilling rigs, boxes of unidentified merchandise, automobile and tractor gear of one sort and another, not to mention 1,400 baby turkeys in 14 good-sized crates.

Criss-Cross Network

This was a flight of Challenger Air Lines, which has sewn a criss-cross pattern of flights all over Wyoming and connecting with major air lines at Denver, Salt Lake City and Billings as well as hitting Casper, Cheyenne, all of which have had air passenger and freight service for a long time. But Challenger's scheduled daily DC-3 flights really open up the rich Big Horn Basin of northern Wyoming with stops every few hours at Worland, Greybull and Powell.

Similarly, the great Wing River Basin is opening up like a flower, now that Riverton and Lander are on scheduled air runs. Between Riverton and Rock Springs you fly the old Oregon Trail, crossing South Pass more comfortably than the Meekers and the Mormons and the '49ers made it. Also you fly right

July, 1949—WESTERN INDUSTRY

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Thriving Business

What Challenger Air Lines is doing to open up the formerly-isolated communities of Wyoming, north of the Union Pacific, tracks is being duplicated southward through Colorado, New Mexico and Utah by an affiliated com-

pany, Monarch Air Lines. Here again, not only passengers but all sorts of industrial, mining and commercial freight make up a good portion of the cargo on every flight to such places as Durango in the thriving San Juan Basin, Gallup, Grand Junction, Glenwood Springs, Montrose-Alamosa, Salida and Leadville. By the time this appears in print, north eastern Utah's oil-rich Uintah Basin will be opened up with an authorized Challenger stop at Vernal, near Rangely Field. These feeder lines perform an important function, helping rather than hurting the big airlines that

serve the region so well, including United, Western, Northwest, TWA, Continental and Braniff.

More Water Coming

It has been a wet season, surprisingly enough, in Salt Lake City, Denver and most points in the central Rocky Mountain region (while Montana is drier than usual even to the point of having a lot of people worried about crop prospects). But for the long-range situation, there is assurance of water in many places—irrigation water—through the settlement, at long last, of disputes over Colorado River water. Maybe the word settlement is premature, but in general the long fight ended with the signing of the Upper Colorado River Basin Compact early in April by President Truman.

Green Light

Colorado's Western Slope can double its irrigated agriculture, the rapidly growing city of Grand Junction can increase its municipal water supply through the Collbran project, the oil shale plants at Rifle have a go-ahead, wood-pulp manufacture with huge timber reserves in the White River National Forest and others now can go ahead. Moreover, there will be plenty more for trans-mountain diversion projects to move surplus water through the Continental Divide to help out the too-dry eastern slope.

Greatest Project

Greatest of these projects now ready to go is the Arkansas Valley-Gunnison project, but it means a lot to Pueblo, Colorado Springs and Denver water supply plans, too. The five-state Compact is one of the major achievements of the 20th century for the Rocky Mountain area. Western Colorado puts more water into the Colorado river than into all three of its eastern slope rivers, the Rio Grande, the Arkansas and both branches of the Platte.

Who Takes the Cut?

There's hell to pay in the nation's most prosperous region — the high plains country from the Texas panhandle northward through parts of Oklahoma, Kansas, Colorado, Nebraska, Wyoming, Montana and the Dakotas. High prices for wheat and other grains during the war years and since have caused this area to go hog-wild over grain production. Now the government says the crop must be cut back because too much grain is being produced. Instead of having everybody cut down a bit, the official formula says everybody must go back to the pre-war status quo. That means murder to the economy of eastern Colorado, for example—or so it looks at this writing.



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Air Cargo Institute Of California

The Air Cargo Institute of California is now participating with Lockheed Aircraft Corporation, the U. S. Department of Agriculture and the Southern California Floral Association in a cooperative horticulture products air cargo research program.

Tests are being made in the laboratories of Lockheed Aircraft Corporation to determine how flowers withstand low pressures at high altitudes. The tests also cover the effects of temperature and humidity as encountered in air transportation. The equipment in these laboratories makes it possible to simulate flight conditions and gain valuable information on the effects of air transportation without involving unreasonable expenditures of money and the loss of valuable flowers.

Sweet peas, carnations, daisies, stock, roses, orchids and gardenias are some of the flowers supplied by the Southern California Floral Association for testing under these conditions.

Strawberries are being air shipped out of Fresno County at the rate of 50,000 pounds a week. Shipments began April 24th and are expected to continue for a period of ninety days. Up to May 3rd over 78,000 pounds of berries have been air shipped to Colorado, Wyoming, Washington and points in Western Canada. Strawberries are picked during the day, loaded aboard planes during the evening and are on the market shelves the following morning.

Directory For Special Libraries

The Special Libraries Association has announced the publication of a Pacific Coast Membership Directory. This business directory, the first of its kind, contains a complete listing of all business firms and other organizations maintaining libraries in Washington, Oregon, and California, and the names of the librarians and library staff.

The Directory was released to coincide with the national convention of the Special Libraries Association in Los Angeles, June 11-18. This 40-year old national organization of over 5000 business and technical librarians has not met on the West Coast since 1930. Margaret M. Rocq, librarian of Standard of California, San Francisco, and Margaret Hatch, librarian of Metropolitan Life Insurance Company, San Francisco, are the West Coast members on the national Board of Directors of Special Libraries Association. The Directory may be purchased from H. L. Williams, 840-54th Street, Apt. B, Oakland, California at \$1.00 per copy.

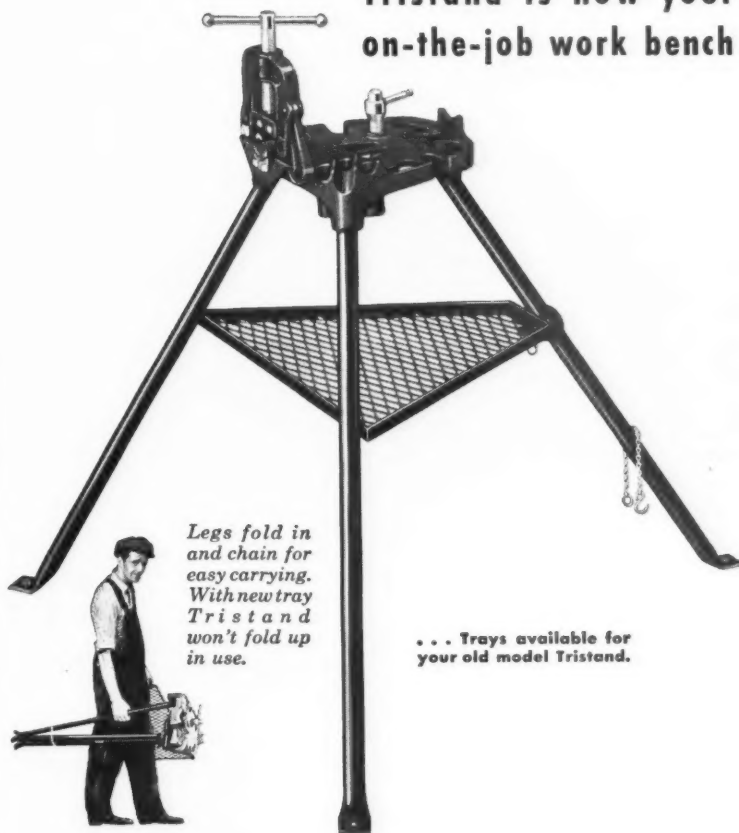
July, 1949—WESTERN INDUSTRY

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REGIONAL REVIEWS

The Wasatch Front

Economic Soft Spots Start Showing As Price Spiral Slowly Unwinds

Non-ferrous metal mining industry takes a jolt as prices for lead and zinc skid; Difficult wage negotiations ahead.

SALT LAKE CITY—Economic soft spots, which this area has been expecting, and dreading, since the end of the war, are at last beginning to show up.

And incidentally the psychological impact of anything suggesting a decline is greater on the business community at this point than it would have been immediately after the war. For while they might not consciously recognize the fact, many people had subconsciously convinced themselves they were on a one-way escalator—one that would keep moving up.

At the moment the most conspicuous soft spot is the nonferrous metal mining industry. Mining economists have figured that the sharp drop in metal prices will reduce the gross income of Utah mines by \$40,000,000 during 1949. This isn't peanuts for a state of this size. But on the other hand a good slice of that sum would have been gravy had it materialized.

The general tendency in the industry is to reduce the work-week from 48 to 40 hours to eliminate overtime. But in some operations, where pumping is necessary, this isn't feasible because part of the overhead is continuous whether or not the ore is being taken out. Some of these mines will keep income above costs by mining higher grade ores and others will be forced to close down.

Marginal operations, which have no ore that can be mined profitably at the present level of prices, will likewise be forced to suspend. One such is the Pacific Bridge Company's mill at Park City, which has been profitably retreating old tailings for the past three years. The price drops for lead and zinc put this venture into the red and it has been shut down, with a loss of 55 jobs.

But unless labor troubles develop, the outlook for the industry is not so dismal as the work-week cutbacks and scat-

tered shutdowns would indicate. One well informed source predicted that slump in prices would have a greater effect on production some years in the future than it will now. The immediate effect, he said, would be minimized by turning to the higher grade ores and slighting of development work.

The outlook for the steel and allied fabricating industries is somewhat brighter. Irving S. Olds, chairman of the board of U. S. Steel Corporation, said during a recent visit here that he did not expect a cutback in the corporation's Western operations in the foreseeable future. The decline in demand for structural shapes and heavy plate is being offset at Geneva by boosting production of hot rolled coils.

The Kaiser-Frazer Parts Company blast furnace at Ironton has been placed on a standby basis because of a shriveling demand but Mr. Olds asserted that U. S. Steel expects to continue operating its Ironton furnace.

There has been some cutback at the Pacific States Cast Iron Pipe Company plant at Ironton but fabricators in the Salt Lake area are still operating at a normal rate. The market for some products in urgent demand a few months ago has slumped badly but other items are picking up.

Retail trade, which fell substantially below the 1948 level during the first quarter, picked up in April and climbed a few points above the mark for the corresponding month of last year. Figures for May were not available at the time this was written but a spot check indicated that it fell below the 1948 month.

Another one of the brighter spots in the area is the oil industry. Exploration work is continuing in many parts of the state with encouraging results and Standard of California is going ahead with an expansion program at its recent-

ly completed refinery in North Salt Lake.

The American Gilsonite Company plans to complete its gilsonite pulverizing plant at Bonanza the latter part of July. This is a new venture, involving the feeding of the gilsonite into the Rangely crude oil pipeline for transmission to the Salt Lake refinery.

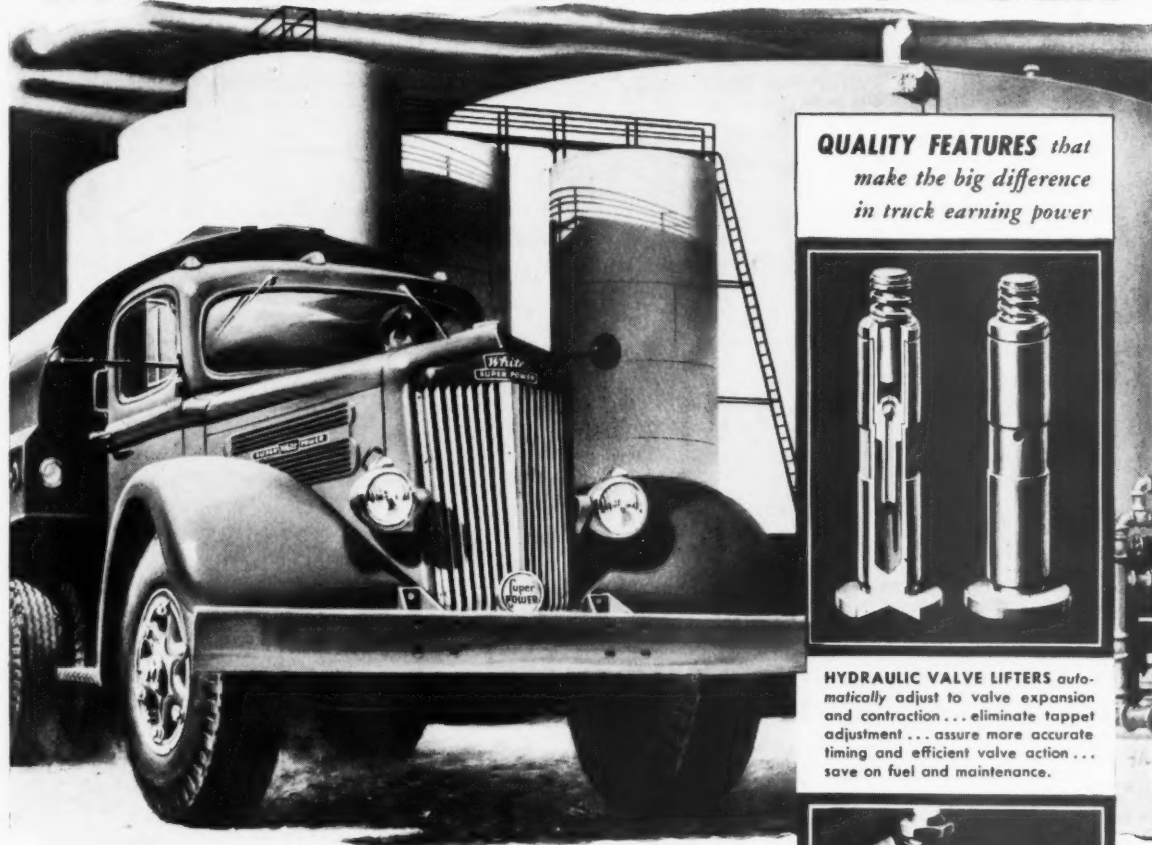
The newest oil refinery in the area, a \$300,000 plant of the Western States Refining Company, started operating early in May.

An unsettling factor at the moment is the wage negotiations, which have been settled in very few instances. Some of the construction crafts are talking 25 cents an hour increase and the contractors are saying they can't go any higher. Some of the mine operators have asked for discussions regarding a decrease. This is probably a tactical maneuver, so they can start negotiating on the question of how much instead of how much more. It has become something of a habit to assume that the only direction wages can move is up. But any increase in that industry this year will serve to widen the marginal segment that can make the grade, and thereby decrease employment.

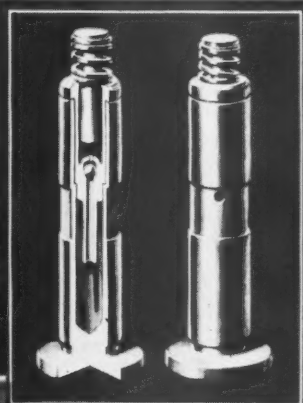
Mine and smelter negotiations will no doubt be complicated by the bitter feud between the International Union of Mine, Mill & Smelter Workers and the Progressive Metalworkers committee. The latter is made up of local unions which seceded from MM&SW because of alleged communist control. The state CIO recently came publicly to the aid of PMC by passing a resolution in annual convention calling upon the national CIO to clean up the situation and set up one union for the industry.

The division may strengthen the hand of the employers. But it could also work to make negotiations and agreements difficult.

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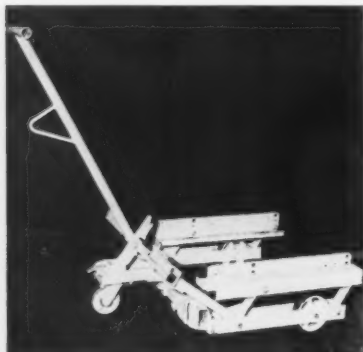
July, 1949—WESTERN INDUSTRY

NEW MATERIALS & EQUIPMENT

967-M

Tote Pans Handled By Lift Truck

The width of the new tote pan lift truck being manufactured by *Lyon Raymond Corporation, Greene, N. Y.*, is adjusted by loosening eight set screws and contracting or expanding the telescopic frame as required; its lowered height is changed by raising or lowering the side plates which are fastened by four bolts. Its two-way adjustment allows it to be used with standard tote pans ranging in width from 8 to 24 inches.



968-M

Build Your Own Conveyor

The Slider Bed Belt Type Conveyors, which are made in Chicago by the *Coburn-Foster Conveyor Company*, are shipped to all parts of the country in a knocked down condition for erection as per engineered erection drawing accompanying, with no additional engineering required. The conveyor, a streamlined belt-type, comes in lengths up to 100 feet and widths of 8, 12, 18 and 24 inches.

969-M

New Liquid Erases Typing Errors

When a new type of typewriter ribbon, called "Del-e-Tape," is used, any typing errors made can be deleted with the use of its manufacturer's liquid eradicator. When a change is necessary, a word or whole sentence can be made to disappear by painting away the words with the liquid. The ribbons come in black, black and red and blue for all standard makes of typewriters, including electric ones. *Aetna Products Co., New York.*

66

970-M

Nailing Machine

Such large wooden assemblies as pallets and shipping crates can now be made with production-line efficiency with the new commercial nailing machine made by *Food Machinery and Chemical Corporation, Riverside, California*. Machine is made to operate at 120 strokes a minute, has a 24-nail drive, all-steel frame and adjustable nail feed.

971-M

Rotating Forks On Mercury Trucks

A new assembly on the "Yak" and "Yank" fork trucks provides 180 degrees rotation of forks in either right hand or left hand direction, and is powered through the truck's hydraulic pressure system. Control of the rotation is invested in a single handle adjacent to hoist and tilt handles on the dash. *Mercury Manufacturing Co., Chicago, Ill.*

972-M

Magnetic Pulley For Conveyor Belt

The new magnetic pulley made by *The Homer Manufacturing Co., Inc., Lima, Ohio*, was designed especially for the separation of tramp metals from products of such industries as textiles, food, chemicals and steel mills where tramp metal must be removed while material travels on conveyor belt. The pulleys can be used as either head end or idler pulleys and come in 57 standard sizes.

973-M

Paint Available For Galvanized Metal

New galvanized metal surfaces, such as those of Quonset and other steel buildings which heretofore have required weathering or chemical treatment before successful bond could be obtained, can now be painted with a newly developed paint called "Quon-Kote." The paint is specially compounded with linseed oil base to react chemically with the zinc on new galvanized surfaces to form a tightly-bonded protective coat without a primer. Paint comes in white, cream, red, green and gray. *Great Lakes Steel Corporation, Detroit, Michigan.*

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974-M

Portable Tool Cuts Sheet Metal

The "Nibblex" can make circular cuts in sheet metal with radii as small as one inch, and can get into places the average sheet metal power tool can't reach. The tool is easily portable (weighs only 13 oz.) can be carried in the pocket and is designed to be fixed in the chuck of any 1/4" motor in the same manner as a drill. *Nord International Corp., New York, N. Y.*

975-M

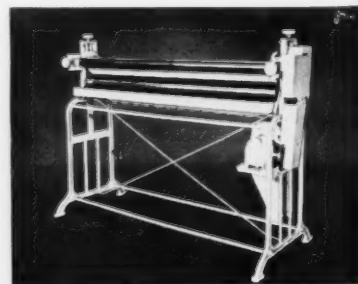
Vibrating Screens Sift Out Foreign Matter

Screening lumps and foreign objects out of flour, powdered coffee and sugar, flour and dust from macaroni, dewatering and screening chopped vegetables in dehydrating plants are some of the jobs done with the vibrating screens made by *Syntron Company, Homer City, Penna.* The screens come in various models and meshes and are activated by the Syntron "Vibra-Flow" vibrating motor.

976-M

Roller-Type Machine Coats Any Flat Surface

Strong Speed Coaters deposit a smooth, uniform coating of any desired color-thickness on materials of any length and up to 50 inches wide and 1 inch thick. Machine is equipped with Neopreen 4" rolls, can coat up to 4020 lin. feet per hour or 16,880 sq. feet 48" wide per hour, and anyone can learn to operate it, say manufacturers. In addition to applying paint, machine can be converted to spreading glue or plastic protective coatings. *L. R. Wallace & Co., Los Angeles.*



WESTERN INDUSTRY—July, 1949

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Also further information on the following products advertised in this issue:

Name _____	Title _____
Company _____	
Address _____	
City _____	Zone _____ State _____

977-M



Retractable Trouble Light Hangs from Wall, Ceiling

Retracto-Reel is a retractable trouble light designed to be completely portable, for use in factory, warehouse, workshop. The light is fully insulated and caged, and its retractable cord plays out easily and automatically locks at desired length; after use, a simple tug releases the ratchet and the lamp retracts to the reel. Lamp has a radius of 25 or 45 feet from its reel rack. *M. Black Manufacturing Co., Philadelphia, Pa.*

978-M

Caster Works Without King-pin

A newly designed line of casters, which eliminates entirely the king-pin, locks the curved top of the fork between the top and retaining plates so that the ball race sections, even under excessive overloads, remain properly aligned, assuring easy swiveling. Wheels come in several types: semi-steel with plain or roller bearings, plastic with plain or roller bearings, solid rubber with oilless bearings and vulcanized rubber with roller bearings. *The Fairbanks Company, New York.*

979-M

Clamp Truck Handles Bulky Items

The Baker Clamp Truck, designed for handling of such bulky items as oil drums, barrels, wood boxes, utilizes hydraulically operated clamp arms to grip the load for lifting and transporting, eliminates need for loading onto skids or pallets or for adjusting grabs, hooks and slings prior to moving. Clamps may be equipped with rubber insert blocks to permit carrying fragile items or to minimize slipping when handling metallic items. *Baker-Raulang Co., Cleveland, Ohio.*

July, 1949—WESTERN INDUSTRY

980-M

Machine Clocks Performance Time

The Hourmaster is a new instrument which records the number of hours any piece of machinery or equipment with moving parts has been operated. It converts revolutions per minute, from 1 to 4,000, into hours of operation, and holds record cards for service, production and maintenance records. *Barbour Stockwell Co., Cambridge, Mass.*

981-M

New Line of Electric Hoists

Wright Hoist Division, American Chain and Cable Company, Inc., York, Penna., are putting out a new line of electric hoists in capacities from 1,000 to 20,000 pounds. Equipped with push-button controls, ball bearing, fully enclosed NEMA motors, the hoists are furnished in lug, hook, plain or geared Timken trolley, mounted crosswise or parallel to runway beam.

982-M

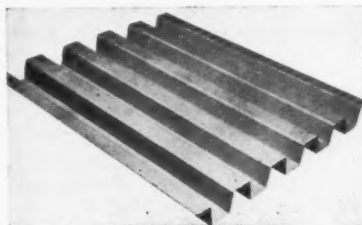
Crawler Truck Converts To Hand Truck

Trak-Truk, made by *American Machine Works, Inc., Racine, Wisconsin*, moves on a four-wheel crawler base equipped with continuous rubber belts, for transporting heavy loads up and down stairs. When a general utility hand truck is desired, crawler base can be retracted and truck operated on the lower wheels like any standard two-wheel hand truck, with the belts acting as tires. Truck is 55½ in. high and 24 in. wide.

983-M

Corrugated Pallet for Lift Trucks

Automatic Transportation Company, Chicago, Ill., are now making a corrugated metal pallet for use with a new push pull attachment on their Skylift electric fork trucks. The pallet has two sets of openings which permit the truck to lift the load and pallet together or to remove the load from the pallet. Manufacturers say combined use of the lift truck's push-pull attachment and the special pallet makes it possible to perform a complete mechanized materials handling operation without the problem of using pallets in transit.



984-M



Newly Designed Hand Shear

The Hobbs Manufacturing Company, Worcester, Mass., has recently announced a newly designed hand shear, the "Jacques Universal Shear." The new shear is available in a medium-size model up to 50 in. with welded steel base, and a heavy-duty model in 55 and 60 inch sizes with heavily reinforced flame-cut base. The new machines are designed for accurate hand cutting of paper, rubber, mica, cardboard, asbestos, light metal and other materials.

985-M

Barrel Truck Has Safety Feature

The construction of the new barrel and drum truck made by *Thomas Truck & Caster Company, Keokuk, Iowa*, enables the truck to stand in an erect position when not in use, and thus eliminates the safety hazard involved when trucks of this type must lie on the floor lengthwise when not in use, or the time involved in stacking them against a wall. The new truck, which is the two-wheel type, weighs only 63 pounds and has a load capacity of 1000 pounds.

986-M

Ball Bearing Swivels Prevent Wire Kinking

Twisting and kinking of the wire lines in strung hoisting blocks can now be prevented, say manufacturers, by using Miller Angular Thrust Ball Bearing Swivels, made by *General Machine & Welding Works, Pomona, Calif.* The swivels, when used on the dead end of strung blocks, are designed to correct the usual tendency of the line to crawl over, and the line follows the lead on the drum.

HELPFUL LITERATURE

for the plant operator who wants to keep informed

2570-L

Lathing and Plastering Practices are evaluated and recommendations for improving the construction of plastered walls and ceilings are made in a report now available from the *Office of Technical Services of the Department of Commerce*. The 296-page report contains a description of, and conclusions obtained from, a study made at the Illinois Institute of Technology. The report is called "Standardized Lathing and Plastering Practices" and is \$3.50.

2571-L

Information about Springs of all kinds is given in a new 40-page catalog printed by the *Seaboard Coil Spring Corporation, Los Angeles*. The catalog includes 10 pages of tables devoted to helical spring design and figuring of weights, material information stressing formula contents and tensile elastic limits is included, as well as specifications for ordering all types of springs. It should prove helpful as a reference work for engineers and spring buyers, to whom it is offered free.

2572-L

Nitralloy Steel—New 8-page engineering data bulletin describes Nitralloy, a special alloy steel suitable for extreme wear and abrasion resistance. Included is table of Nitralloy compositions, hardness curves, mechanical properties, information on nitriding and heat treatment and typical applications. *Joseph T. Ryerson & Son, Inc.*

2573-L

Industrial Furnace Booklet—A new 8-page booklet covers a broad range of industrial furnace equipment for a variety of industrial processes, like hardening, tempering, forging, metal melting, air heating, etc. The booklet explains how the different types of furnaces operate and is illustrated with many drawings. *Surface Combustion Corporation, Toledo, Ohio*.

2574-L

Instruments for Measuring Temperatures of generators, motors, condensers, transformers, etc., are listed in a new 35-page catalog, which should be of interest to all those responsible for the safe operation of electric power equipment. The catalog, ND4-33-461, is put out by *Leeds & Northrup Company, 4934 Stenton Ave., Philadelphia, Penna.*

2575-L

Improved Employee Relations—The newest checklist of publications put out by the *American Management Association, New York*, lists a number of publications of interest to all executives directly or indirectly concerned with employee relations. Some of the titles listed are "Industrial Relations Under the Taft-Hartley Law," "Rating and Training Executives and Employees," "How to Develop Competent Supervision," "Incentives and Work Standards in the Office." The checklist also contains an order form for ordering any of its publications.

2576-L

Electric Hand-and-Face Dryers — Purchasers of equipment for shops and plants where the workers come in contact with large

amounts of grease, oil or chemicals will be interested in a new eight-page brochure describing an electric hand and face dryer for plant washrooms, designed to dry hands or face in 30 seconds or less. The booklet contains numerous photographs of typical installations of the dryers. *The Chicago Hardware Foundry Company, North Chicago, Ill.*

2577-L

The Tipp Toter, a portable belt conveyor on wheels which can be clamped straight or at an angle, the Tipp Any-Angle, a steel tilting conveyor for floor-to-floor loading, the Tipp power freight ladder for lifting of warehouse loads, and other convenient materials handling devices are described in an eight-page bulletin just made available by *Triangle Equipment Company, Inc., Nutley, New Jersey*.

2578-L

Which Lift Truck Do You Need—a tall narrow one to go through narrow spaces, a hydraulic-type one for ease of operation, a light one even the women in the plant can handle? The new Barrett Bulletin 4883 describes in detail their line of hand lift-trucks in capacities from 1,000 to 15,000 pounds. The 28-page booklet includes design drawings and specifications. *Barrett-Cravens Co., Chicago, Ill.*

2579-L

Carbide-Tipped Tools—A new folder released by *Super Tool Company, Detroit, Michigan*, describes their line of standard carbide tipped tools for turning, boring, facing and threading; seven types of stocked tools, both left and right hand, are included in the booklet, with their sizes and prices.

2580-L

Cellophane Booklet—To help customers of *Sylvania Division, American Viscose Corporation, New York*, better to understand the various types of cellophane the company manufactures, the Division has issued a "Characteristics and Uses" brochure, which lists the types of cellophane manufactured, describes each type and gives a brief statement of "general uses."

2581-L

Drum Finishing Equipment Folder — *Eclipse Air Brush Company, Newark, New Jersey*, are distributing a new four-page folder giving details about their manual and automatic drum finishing units. Equipment described includes a drum rotating unit, a semi-automatic drum painter, which paints and stripes up to 450 drums per hour and an automatic chime painter.

2582-L

Wheel and Roller Conveyors Described—*Metzgar Company Grand Rapids, Mich.*, who claim that a gravity conveyor is only as good as its wheels and bearings, have issued an interesting 4-page brochure containing large close-up cross section drawings of their Labyrinth Ball Races, a drawing of their metal rollers cut away to show their construction, and photographs of one of their installed conveyor systems at different points in its travels through the plant.

2583-L

Care of Batteries — Battery purchasers, users and maintenance men will be interested in a new 40-page pocket-size handbook on the care of motive-power batteries. The book has sections on care and operation, maintenance and repairs, parts and technical data, and includes photographs and illustrations. It is put out by *The Gould Storage Battery Corporation, Trenton, N. J.*

2584-L

New Bulletin on Stationary Batteries—*Gould Storage Battery Corporation, Trenton, New Jersey*, announces a new 16-page catalog covering battery units for stationary service; descriptions of four complete lines of glass jar batteries, designed for standby service, emergency lighting, control, fire alarm, telephone, telegraph and other stationary applications are included in the two-color booklet.

2585-L

"Required Equipment for Lubrication Control" is a new four-page circular issued by *The Gerin Corporation* describing equipment and method for testing the condition of lubricating oil. The circular describes simplified, accurate methods of measuring contaminants like dirt, metal particles, other sediment through the use of the company's portable oil inspection kit.

2586-L

Townmotor Job Study No. 85—This interesting job study, just published by *Townmotor Corporation, Cleveland, Ohio*, takes the reader through a farm tractor plant to show how they solved their materials handling problems and speeded up production through use of the Townmotor fork lift trucks and accessories.

2587-L

"For Low Cost Metal Parts" is the title of Bulletin 4803, recently published by *The Hydraulic Press Manufacturing Company, Mount Gilead, Ohio*. It discusses in detail the advantages of hydraulic die-casting as a means of producing precision metal parts quickly and inexpensively and describes specific jobs produced in this manner.

2588-L

The Five-Ton Mobile Crane manufactured by the *Hyster Company, Portland, Oregon*, is described in a new four-page bulletin, which gives the story of it in action on jobs in the United States, Brazil, South Africa, Sweden and the Fiji Islands in moving many types of heavy and bulky objects.

2589-L

"Corrosion-Resistant Piping Materials" describes the complete Crane line of valves, fittings, fabricated piping and pipe coils, designed to meet a wide range of corrosive conditions. The 32-page circular also contains eight pages of condensed recommendations, description of alloy materials and a corrosion questionnaire. *Crane Company, Chicago, Ill.*

2590-L

How to Repair a Roof—Stonhard Roof Resurfacers are described in a four-page booklet which lists the properties and advantages of both the plastic and the liquid type and also includes brief descriptions of their other products for repairs to various types of floors and to concrete surfaces.

2591-L

New Chemical Discoveries—New things being done with chemicals, as well as new products and bulletins of interest to users of chemicals are detailed in *U. S. I. Chemical News*, available from *U. S. I. Industrial Chemicals, Inc., New York*.

READING GUIDE FOR WESTERN MANAGEMENT

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

Job Horizons

By Lloyd G. Reynolds and Joseph Shister
Harper and Brothers, New York, 1949,
\$2.25.

How do workers locate and select new jobs? On what basis do they choose one job instead of another? What determines whether the worker will stay on the job after he is hired? On what basis does he decide whether the job is good or bad? What things about the job are most likely to make him dissatisfied to the point of quitting? How important are wages? What are workers' occupational plans and ambitions? What methods of self-advancement do workers use, and what are the chief obstacles they encounter?

The social importance of these and similar questions and their bearing upon the entire subject of labor-management relations are obvious. Every member of management has ready use for the answers. Yet, in many instances, management's information in this area is made up largely of opinion, speculation, and generalization based upon limited personal observation.

Recognizing the need and opportunity for betterment in this situation, Professors L. G. Reynolds and Joseph Shister of Yale University, with the help of a staff of assistants, set out to obtain the facts. Working under the auspices of the Yale University's Labor and Management Center, of which Professor Reynolds is Associate Director and Professor Shister is Director of Research, they sought answers to these questions by making a study of a sample group of workers in a medium-sized New England city. During the year 1937 they interviewed about 800 workers selected to provide a cross-section of the manual workers in the community. The book *Job Horizons* is a preliminary report of their findings.

While admitting the somewhat special nature of their sample, the authors present findings which to some will come as a surprise. For example, they find that although security of employment is, as often stated, important to the worker in determining his satisfaction with his job, he is apt to attach greater importance to five other factors which are: physical characteristics of the job, degree of independence and control permitted him in doing his work, adequacy of his wages to cover living costs, fairness of treatment by employer, and personal interest in the work performed.

The study also revealed that, whereas management is making considerable progress toward more scientific personnel practices, most manual workers decide such essential matters as choosing their first job, and seeking improvement in their job status, wholly on the basis of chance. The need for constructive effort in this area is apparent and is in itself an excellent subject for further study and report. It is anticipated that the authors will have more to say about it in the final analysis of their data which will be presented in book form in about a year's time.

In 101 well written pages, amply illustrated by charts and excerpts from interviews, the authors tell their story in sufficient detail to make this book an interesting record and a worthwhile contribution to the field of Human Relations.

Reviewed by:

HAROLD E. ATKINSON
Lecturer in Human
Relations

Workers Wanted

By E. William Noland and E. Wight Bakke. Harper and Brothers, New York, 1949, \$3.00.

Specifically this book seeks answers to such questions as (1) What causes an employer to choose a given worker? (2) How does the firm go about making the selection? (3) What is an 'Ideal' common laborer, or clerk, or executive and administrative assistant? (4) What are sources of potential labor and how are they actually used?

To get these answers a research project studied the employment situation in New Haven, Connecticut, and Charlotte, North Carolina. A 170-page running commentary on the results of this project makes up the body of the book and the data which supports the story have been placed in readable form at the conclusion of the presentation.

There are many very interesting developments in this document, for certainly it is a record of more than just employment statistics. The authors tell us at the beginning that the basic objective is centered in "the development of principles of human behavior and relations which accurately reflect the nature of human beings and the impact of conditioning forces and factors upon their behavior. . . . In every case we are seeking to answer the basic question, Why in this situation do men behave as they do? What motivated and

shaped their observed action?" To this objective the work has clung faithfully.

Provocative statements abound in it. For example, "Character is considered more important for office workers than for shop workers (in New Haven)," or "We are convinced that this problem of integration of the whites and Negroes in a team is the crux of the matter and that the other reasons ('unreliable,' 'lazy,' 'irresponsible') are reinforcements."

Or ". . . it is certain that, however important risk taking may have been in the functions of the managers of firms in these two cities, its importance was equalled by that of risk reducing."

Or "In this day of emphasis on equal pay for equal work, however, very little evidence was found of an attempt to obtain workers who would work for less because their bargaining position was weak. The interest seems to lie in the direction of obtaining the greatest productive and teamwork capacity for wages which going standards demand."

This is a really good book on a phase of the social scene which merits much more attention. Let us hope that further and more penetrating studies will follow this pioneering effort.

Reviewed by:

C. LLOYD THORPE
Lecturer in Human
Relations, Manufacturing
& Production Management

Handbook of Insurance

By Clyde J. Crobaugh. Prentice-Hall, New York, 1949.

This is the second edition of a comprehensive reference book covering every phase of life and annuities, accident and health insurance. It is a combination dictionary and encyclopedia, containing the meanings of more than 4,000 insurance terms and their applications, extracts from underwriters' rulings, laws governing insurance contracts, legal citations, and the essentials of premium rates and payments.

Advances in Sales Promotion Techniques

American Management Association, New York, Marketing Series No. 76, 1949.

Includes: A proved plan for improving the selection of salesmen. Revitalizing a sales force to meet a competitive market. Sales promotion techniques in the changing market.

Office Practices That Cut Costs

Prentice-Hall, New York, 1948

Here are tested methods that can help reduce expense and increase efficiency in office management. Topics covered are filing methods, correspondence, forms, office appliances, layouts and lighting, communications, and handling of mail.

Reviewed by:

BERNA M. CARLSON
College Librarian

NEW INDUSTRIAL FILMS FILMSTRIPS • TELEVISINGS

Natural Gas

Title: "The Miracle Flame."
Subject: Non-technical dramatization of the California natural gas industry.
Length: 20 minutes.
Supplementary Information: 16 mm. kodachrome with sound. Available only in eleven Western states.
Available from: Pacific Coast Gas Association, 447 Sutter Street, San Francisco 8.

Steel Wire

Title: "Wire."
Subject: Description of manufacture of wire products—woven fence, barbed wire, nails and bale ties at Bethlehem plant.
Length: 45 minutes.
Supplementary information: 16 mm. sound color film.
Available from: Bethlehem Pacific Coast Steel Corporation, Publications Dept., 20th and Illinois Sts., San Francisco 19.

Engineering

Title: "The Hidden World."
Subject: Picture-dramatization of the importance of the profession of engineering in contributing to better living conditions.
Length: 26 minutes.
Supplementary Information: 16 mm. sound

color film, available for showing to engineering groups.

Available from: Allis-Chalmers Manufacturing Co., Advertising & Industrial Press Dept., General Machinery Division, Milwaukee 1, Wis.

Nevada

Title: "Nevada and Its Natural Resources."
Subject: Story of the development of the state's rich mineral deposits and other natural resources.
Length: 31 minutes.
Supplementary Information: 16 mm. Technicolor sound film.
Available from: Graphic Services Section, Bureau of Mines, 4800 Forbes Street, Pittsburgh 13, Penna.

Materials Handling

Title: "Materials Handling Newsreel, Issue No. 4."
Subject: Use of modern materials handling methods and equipment in six different types of installations.
Length: 20 minutes.
Supplementary information: Black and white, for sound only.
Available from: Advertising Department, Industrial Truck Division, Clark Equipment Company, Battle Creek, Mich.

Industrial Relations

Title: "And In Return."
Subject: Film stresses fair play as the key to sound relationships between management and labor in the steel industry.
Length: 45 minutes.
Supplementary Information: Black-and-white sound film—may be bought or obtained on loan basis.
Available from: J. C. Sears, c/o American Associated Consultants, Inc., 3315 Grant Bldg., Pittsburgh, Penna.

Time and Motion Study

Title: "Mighty Labors."
Subject: Timestudy, Motion Study, Job Evaluation, Wage Incentives, Process Charting and Plant Layout, and the relation of these industrial engineering subjects to each other.
Length: 34 minutes.
Supplementary Information: Sound, color film.
Available from: Film Laboratory, Industrial Engineering College, 3309 West Washington Blvd., Chicago, Illinois.

Hand Tools

Title: "The ABC of Hand Tools."
Subject: Proper handling of (Part I) hammers, screwdrivers, pliers and wrenches, (Part II) files, saws, chisels, planes, drills, punches.
Length: (Part I) 18 minutes; (Part II) 15 minutes.
Supplementary Information: Technicolor sound film with animated Walt Disney cartoon characters illustrating the picture's text.
Available from: General Motors Corporation, 1526 Financial Center Building, 405 Montgomery St., San Francisco 4.

More For Your Money

Golden State Company has developed a new method of manufacturing and dispensing ice cream whereby the servings are larger in volume yet equivalent in weight to the standard servings now in general use.

This latest wrinkle in merchandising, said to be one of the most important innovations in the ice cream industry in half a century, centers around the product called Golden State Redi-Serv, which will be marketed initially in California only. Packaged in individual paper soufflé cups that can be released by finger pressure at the bottom of the cup, the product offers ice cream dealers a completely sanitary and streamlined dispensing operation for the first time.

Cylindrical in shape, Redi-Serv fits into the standard ice cream cone, soda or fountain glassware. The product can also be served in its own container. Important new techniques in the manufacturing process make possible a product of smoother texture than that obtained by the current method of filling old-style containers.

The machine which makes all this possible was developed in cooperation with Golden State engineers. Golden State has exclusive rights for the use of the machine in the areas served by its plants.

Paper Pallets Produced In Salt Lake City

Western Paper Products Company, Salt Lake City, have been licensed by Addison-Semmes Corp., Racine, Wisconsin, to manufacture expendable paper pallets. Addison-Semmes, who are licensing manufacturers of corrugated board on the West coast to produce their pallet, have one made entirely of corrugated board, with a compression strength of 5,000 pounds each, which they say will in some cases be able to carry 30,000 pounds.

Edward Butts, Jr., at 1 Drumm Street, San Francisco, is the West coast representative for the licensing firm.

I.F.T. Employment

At its annual meeting to be held in San Francisco, July 10-14, The Institute of Food Technologists will operate an Employment Clearing House to bring together employers and food technologists interested in new positions. Food Processors interested in using this service are invited to contact the Committee on Employment at the time of the meeting. Registration of candidates for employment will begin Sunday and continue throughout the sessions. Inquire at the I.F.T. Registration Desk at Civic Auditorium, San Francisco.

Shortcomings in Gas Appliances

Why can't water heaters be built square instead of round, so they will conform to the cabinets in close proximity to them in areas where homes are built without basements? This was put up to the Pacific Coast Gas Association technical conference at Los Angeles in April by H. Vinton Potter, coordinator of promotion for the American Gas Association.

"Do they have to look like skyscrapers, or could they be a bit more squat so the flue in the basement can have the proper tilt for best operation?" he also wanted to know. In addition, he suggested a remote control so the temperature could be changed by a dial in the kitchen rather than running down into the basement each time.

As for gas ranges, he reported that non-tilt racks still tilt dangerously, that despite claims that the exterior surfaces of ranges are relatively cool some of them are hot in the wrong places, that grids on the burners need either a material that won't discolor or else can be discolored attractively before leaving the factory, that minute-minders are needed for a three-minute egg or the short operation required by a pressure saucepan, and "can we make gas cock handles that will stay on?"

LABOR and the INDUSTRIAL WEST

Lessons For Today's Problems in I.W.W. History in the West

IF HISTORY repeats itself, as the saying goes, those puzzled with the problem of dealing with Communists may find some food for thought in the manner in which the lumber industry in the Pacific Northwest dealt with the Industrial Workers of the World at the time of World War I.

More than 100 leaders of the IWW or "Wobblies," as they were called, were tried in federal court in Chicago, convicted and given prison sentences. Both the Communists and the IWW drew on the philosophy of Marx and Engel for their ideas, but the IWW never concealed their intentions, which were for action right now to help the common laborer, particularly such groups as agricultural labor.

Wonderful Organizers

They were wonderful organizers, excellent at harrasing industry, the police, the courts or anyone else they believed was interfering with the fundamental rights of the common man. They did not believe in conference with employers.

They hated employers and preferred to let management find part or all of the crew gone in the morning than to make demands. These they gave to the newspapers, or told about in open air meetings. Their local union officers could only hold desk jobs for six months, then the constitution said they had to go back to the point of production. They were highly class conscious laborers, and rarely stopped after organizing a crew to build for the future.

Public Opinion Speaks

In the Pacific Northwest the government took a course of action, considered extremely radical in that day, which fully proved to be a perfect offset for the radical theories of the IWW. It was intended to appeal to the average work-

er and his employer, and it removed the IWW by the weight of positive public opinion both on the job and in the communities.

4L's Launched

With the approval of Samuel Gompers, head of the A. F. of L., and other union leaders, the Spruce Production Division of the Army, under the command of Colonel Brice P. Disque, launched in 1917, the Loyal Legion of Loggers and Lumbermen, a patriotic labor-management organization, dedicated to good Americanism, fair play between the parties, a standard form of working agreement between local employers and employees, standard minimum and maximum wages, and a number of other fundamentals in which both employers and employees had a common interest.

Quick Action

Almost overnight a complete industry employing some 40,000 people, in the states of Washington, Oregon and Idaho, was blanketed by a functioning labor relations movement, under the general control, mainly for advice and guidance of Col. Disque and policed for the time by Army men in the 12 districts into which the "4L," as it became known, was divided.

Enthusiastic Joiners

Workers and employers flocked to the new patriotic organization. Those who did not were immediately suspected of being Wobblies, who were opposed to any participation in the war. These were never mobbed, nor mistreated by the 4L. Some were picked up by the army as draft dodgers, some were won over and others just moved away because of the weight of anti-public opinion. Some went into hiding. Some, curiously enough, joined the A. F. of L.

The set-up consisted of a series of local unions of one employer and his employees, considered one unit which had full autonomy as long as it remained within the word of the constitution. Each individual member signed the same pledge as was signed by the employer.

First obligation was allegiance to the American flag. Then obligation to deal fairly with the other party and to accept the results of friendly negotiations between the elected committees or boards functioning between the employer and his employees and in groups, as districts and the general Board of Trustees, consisting of 12 employers and 12 employees, who represented in negotiations the entire membership of the two parties. This was headed by Col. Disque as chairman during the war.

Until War's End

Until the end of the war, or approximately a year, the new organization functioned under the chairmanship of Col. Disque and in that short period, most of the demands for which the IWW had struck in the spring of 1917 — the 8-hour day, \$3.00 minimum wage, sanitary camps, sheets and pillow cases — were negotiated and agreed upon between the Board of Trustees.

In some instances, particularly the 8-hour day, the employers grumbled and Disque had pushed them pretty hard. Disque got sanitary squads to working all over the territory and cleaned up the camps. He cracked down on those who paid more or less to workers than the scheduled wages, using his own and the Board of Trustee's power.

A Happy Year

Altogether the year was a happy one for the employees. They had gotten more improvement in that period than the IWW expected to get in years,

OUR PLANT ENGINEER
CALLED IT A
"POWDER PUFF FACTORY"



"We liked the location and the size, but when we figured on increasing crane capacity, the structure just wouldn't take it. Our plant man finally gave up in disgust saying, 'They must have built this shop for a powder puff factory.'"

"When we decided to build, you can bet we planned *in advance* against the possibility of a future need for greater crane capacity."

"The Shepard Niles specialist was a great help in this planning. He seemed to know just about what loads were maximum in different types of industry. We were guided, to a great extent, by his suggestions."

The time to plan for most economical materials handling is before the building is built or the remodeling completed. Ask the Shepard Niles specialist to sit in—he has lots of experience behind him—and his sales interest is not concentrated on any one type of lifting tool.

SHEPARD NILES
CRANE AND HOIST CORPORATION

Makes and sells all three lifting
tools for airborne shop loads.



SHEPARD NILES CRANE & HOIST CORP., 469 Schuyler Avenue, Montour Falls, N. Y.
INDUSTRIAL CONSTRUCTION CORP. LTD., 826 Santa Fe Avenue, Los Angeles 21, Calif.
STRYCO MFG. CO., 470 Natoma St., San Francisco 3, Calif. • MR. PRESTON FALLER, 1921 Minor Ave., Seattle 1, Wash.

and without a struggle; all done by talk. And they liked it.

After War's End

When the war was over, the employees and many of their employers wanted the mutual arrangement continued, so a general call was sent out to each local and each employer to send one delegate and one alternate, if they wished, to attend a conference called to determine if the membership wanted this arrangement continued.

Practically unanimously, some 500 delegates who met in Portland, Oregon in December 1918, approved continuing the 4L under the same name, with the same obligations on members, and with the organization to be financed by a 25c monthly per capita assessment for employees with employers paying the total amount paid by their employees.

Important Considerations

One of the important considerations was the friendliness already developed between the employers and the employees; another was fear that IWW might rise again, something both parties were agreed should not occur.

This "mutual respect for the other fellow's viewpoint" body got along well from 1919 to the late twenties when it started to die because it never had any more trouble and the administrators, (neutrals) ran out of ideas. They began in 1925 and 1926 trying to hold the status quo and living too much in the glory of the past. In the thirties the successor to the 4L, the Employees Industrial Union, was labeled a company union under the Wagner Act and dissolved by court action.

1923 Reorganization

In 1923 the IWW reorganized and made an attempt to strike industry, particularly in the woods, but the 4L was ready. Trained speakers went from camp to camp, talking hard, rough, logger language, to called meetings of the loggers. Circulars and hand-bills, giving facts about the Wobbly, from the 4L point of view, were used.

Fizzle and Bust

When the day came for the big strike, something less than 20 per cent of the logging workers in the entire Pacific Northwest lumber industry left their jobs. The Wobblies simply folded up. But, the Communists were already moved in.

WESTERN INDUSTRY—July, 1949

GENERAL WAGE CHANGES IN PACIFIC - ROCKY MOUNTAIN REGION

NOVEMBER 16 TO DECEMBER 31, 1948

NOTE: This tabulation only reports changes. Information on the large number of contracts renewed without change is unavailable. Therefore the tabulation should not be construed as an indication of the overall trend.

Compiled from various sources by Bureau of Labor Statistics, Wage Analysis Branch
(Where initials of unions are given below: A=A F of L; C=CIO; I=Independent)

COLORADO	Location	Date	Amount of Increase	Number of Workers	Other economic Benefits
9 brewery and soft drink companies	Denver	4/1/49	10 cents hr.	BFCSD—300	6 paid holidays
Colo. Metal Products Co.	Denver	4/49	10 cents hr.	BSOIW(not given)	Add. paid holidays
Ellis Canning Co.	Denver	4/49	4 cents on min. 5 cents on max.	TCWH—A—75	
U. S. Vanadium Corp.	Rifle	Retro. 2/25/49	5 cents	UMW—50 I—65	
Western Slope Contr. Ass'n	Grand Junction	Retro. 4/1/49	5 cents	CJA—A—125	Adjust. in appr. rates
Contractors	Denver	About 4/1/49	25 cents	BMP—A (plasters)	
Contractors	Denver	About 4/1/49	16 cents	A—Plumbers	
Rio Gr. Motor Ways, Inc.	Denver	Retro. 12/1/48	5 cents	BRSC—A	13 classes upgraded add. 5 cents
Rio Gr. Motor Ways, Inc.	Denver	4/1/49	5 cents	TCWH—A—75	
ARIZONA					
Beer Distrs.	Tucson	5/3/49	7½ cents	TCWH—A—25	
CALIFORNIA					
Metal Working					
Metalites Mfg. Co.	Glendale	Retro. 4/1/49	7½ cents	IAM—I—50	
Baash-Ross Tool Co.	Los Angeles	Retro. 4/1/49	5 to 20 cents	IAM—I—225	Improved vacations
General Motors Corp.	Los Angeles	4/13/49	7½ cents	IAM—I—47	
Electrical Engr. Co.	Los Angeles	About 4/15/49	5 cents	IBEW—A—150	
Metal & Thermit Corp.	Oakland	Retro. 4/1/49	3 cents	USA—C—160	Approx. 2% on interim basis
Printing					
Moore Bus. Forms, Inc.	Oakland	4/22/49	\$1.50-6.25 wk.	IBB—A—75 wom.	
Sunset McKee Co.	Oakland	4/25/49	\$2.50-4.50 wk.	100	
Fruit Growers Supply Co.	Hilts	Retro. 4/1/49	15 cents	CJA—A—16 (carpenters)	
Stone, Clay, Glass Products					
Davidson Brick Co.	Los Angeles	4/27/49	5 cents	40	
Food Processing					
Meat Pack., Inc. (40 firms)	Los Angeles	10/18/48	4 cents hr.	MCBW—A IUOE—A—1750	
Perkins Grain & Mill. Co.	Sacramento	4/11/49	4½ cents	ILWU—C—24	
Mother's Cake & Cookie Co.	Oakland	Retro. 4/1/49	5 cents	BCW—A—210 (bakery workers)	
Miscellaneous					
Paraffine Companies, Inc.	Oakland	Retro. 4/1/49	6%; approx. 12½c to machinists	USA—C—90	
Adams-Campbell Co.	Los Angeles	Retro. 4/1/49	5 cents	MMSW—C—60	6 paid holidays and hospital insurance
NEW MEXICO					
Manufacturing					
2 Sand & gravel co's	Albuquerque	4/8/49	8 cents	TCWH—A—15	Improved vacations
Benton Van & Storage Co.	Albuquerque	4/8/49	9 & 10 cents	TCWH—A—21	9c to warehousemen 10c to drivers
OREGON					
Metal Working					
57 Sheet metal shops	Portland and vic'y	About 4/13/49	15 cents	SMU—A—150	
Port. Warm Air Htg. & Ventilating Assn.	Portland	Retro. 4/1/49	20 cents	SMU—A—128	
Lumber					
Booth-Kelly Row River	Dorena	4/1/49	2½c to 25 (aver. 5c and better)	IWA—C—34 job classifications	
Chemicals					
5 Oxygen companies	Portland	About 4/4/49	5 per cent	TCWH—A—40	
4 Acetylene & oxygen co's	Portland	Retro. 4/1/49	5 per cent	IUOE—A—40	
4 Brick & stone co's	Portland	About 4/18/49	7½ cents	UBCW—A—175 factory workers	
UTAH					
Construction					
Plumbers AFL Contractors	Salt Lake City	4/49	10 cents	Plumbers	

Wage Renewals Indicate Period Of Leveling Off Is Here

THE beginning of what appears to be a period of wage leveling off may be seen in the current wage change report of the Bureau of Labor Statistics, released about June 1 and covering major wage changes up to approximately May 1.

A total of 39 contracts, covering thousands of employees, were reported as renewed between employers and unions without wages being changed. The entire country is represented in the report and all regions are to be found in the classifications where wages were not changed in this spring's negotiations.

Increases are Less

Also, where wage changes have been reported, the Bureau points out, increases were much less than those made last year.

"Wage scales for the most of the building trades in New York City are fixed by stabilization agreement until July 1, 1950," the Bureau report states. "Bricklayers, one of the groups not covered by the agreement, agreed recently to maintain present scales for another year. Newark carpenters traded nine paid holidays previously in effect for a 10-cent wage increase.

General Pattern

"Road laborers in Massachusetts, carpenters and painters in Westchester County, N. Y., structural iron workers in Northern New Jersey, and all major crafts in St. Louis were among the groups reported as accepting present scales for another year.

California Pattern

"Painters in six Bay Area counties in California agreed to a hospitalization and medical benefit plan, to be financed by a 2 per cent payroll contribution by employers.

"The California Metal Trades association," the report continues, "representing approximately 130 manufacturing and jobbing plants in the San Francisco area, negotiated new agreements with the International Association of Machinists (Ind.), the International Molders and Foundry Workers Union (AFL) and the Metal Polishers, Buffers and Platers Union (AFL) providing for the establishment of a comprehensive program of life, hospitalization, surgical, medical and private disability insurance. The unions have requested a wage increase but accepted this program

UNION CONTRACT RENEWALS THIS YEAR

Employer or Group	Location	Date of Contract	No. of Workers and Union	Reason for renewal without change, or concession granted
Winery Employers Assn. (54 wineries)	Napa & Kern Co's, Calif.	4/1/49	AFL—2,000	New Co. pd. health & welfare
3 Rayon printing, dyeing & finishing co's	Rhode Island	4/26/49	TWUA—C—1,100	Arbitration decision
Frostman Woolen Co.	Passaic, N. J.	4/7/49	TWUA—C—4,000	Arbitration decision
Martinsville Cot. Mills Co.	Martinsville, Va.	3/49	TWUA—C—250	
A. D. Juilliard & Co., Inc.	Brookford, N. C.	4/49	TWUA—C—500	Health, accident & dth. ins.
Golden Belt Mfg. Co. (sub. of Amer. Tob. Co.)	Durham, N. C.		TWUA—C—500	Retirement plan est. by Co.
Pickett Cotton Mills	High Point, N. C.	3/22/49	TWUA—C—300	
Woodside Mills	Greenville, S. C.		TWUA—C—1,300	Job rate adjust. add. reporting time allowance
Hettrick Mfg. Co.	Toledo, O.	3/30/49	TWUA—C—200	3 paid holidays
A. D. Juilliard & Co.	New York Mills		UTWA—C—200	(Note: There are two unions—Textile Workers and United Textile Workers)
Associated Dresses Mfg. Assn. (41 co's)	Boston, Mass.	3/18	ILGW—A—3,100	1% payroll contrib. retirement fund; incent. workers to 1½ time after 40 hrs. Was after 35
*Associated Corset & Brassiere Mfrs., Inc.	New York, N. Y.		ILGW—A—5,000	*Prior to 3/1/49
Imperial Desk Co.	Evansville, Ind.		SUFW—C	Contract renewed
St. Regis Paper Co. (11 plants)	Various	4/49	PSPMW—A IBPM—A—3,000	Contract extended to 4/30/50, wage reop. on 60 days notice
Container Corp. of Amer.	Philadelphia, Pa.		IBPM—A Psi-MW—A—400	Contract extended 5/17/50, wage opening on 30 day notice either party
Albemarle Paper Co.	Richmond, Va.	4/1/49	UPA—C	
Lever Brothers Co. (5 plants)	Mass., N.J., Md., Ind. and Mo.		ICW—A GCCW—C—3,000	1 add. paid holiday (total 9); Co. pd. group hosp. for employees and families
*E. I. DuPont De Nemours & Co., Inc. Electro Chem. Div.	Niagara Falls, N. Y.		Independent Union 1650	*Contract closed before 3/1/49
Gulf SS Oil Corp.	New England	3/49	AFL—750	7% Cost of Liv. bonus cont'd
Boston Woven Hose & Rubber Co.	Cambridge, Mass.	3/23/49	URW—C—1,000	Bonus \$45 women, \$50 men; contract extend. to 9/3/49
Atlantic Tubing & Rub. Co.	Cranston, R. I.	4/11/49	URW—C—200	2 add. pd. holidays (total 5)
Franklin Glass Corp.	Butler, Pa.	4/1/49	GCSSW—C—450	Contract extended to 6/1/49
Federal Tin Co. (tin cans)	Baltimore, Md.	3/24/49	USA—C—400	Contract renewed; wage reopen. on 5 days notice
Tubular Rivet & Steel Co.	Wollaston, Mass.	3/28/49	IAM—I—700	
Wincharger Corp. (Elec. machinery)	Sioux City, Iowa	3/49	IAM—I—500	1 add. pd. hol. (total 5); 5c adj. several class; 6 pd. hol.
16 Truck & Trailer plants	San Fran. Bay Area, Calif.	3/28/49	IMA—I—900	Contract extended to 9/1/49
California Metal Tr. Assn.	San Fran. Bay Area, Calif.	4/49	IAM—I IMFW—A MPBP—A 8,800	Health and welfare plan to be effective 8/1/49
Wash. Metal Trades Assn. (46 shops)	Seattle, Wash.	3/31/49	IAM—I MTC—A—3,400	1 add. pd. holiday (total 7)
Morrow Machine Co.	Hartford, Conn.	3/31/49	UEW—C—250	1 add. pd. holiday (total 7); add. vac. and ins. benefits
Allis-Chalmers Mfg. Co.	Norwood, Ohio	3/28/49	UEW—C—1,100	Wage to reopen within year
*Welbilt Stove Co.	New York, N. Y.		FLU—A—600	*Prior to 3/1/49

in its stead. About 9,000 workers are involved."

Under this plan "the 1 per cent employee deduction (on earnings up to \$3,000) will be transferred to a privately-operated plan. All costs in excess of this contribution are to be borne by the employers." The plan is to become effective August 1, 1949. "However, should it be found impracticable to apply such a program on a multiple-employer basis, the unions may reopen the issue of a general wage change on August 1.

"In other negotiations, the California Metal Trades association provided six paid holidays and no additional benefits to approximately 2,500 boilermakers (AFL) and job-shop machinists (CIO) in northern California plants.

Washington Metal Trades

"In Seattle, negotiations between the Washington Metal Trades association, 46 establishments, and the I.A.M. (SSS Ind.) and various AFL unions resulted in one added paid holiday, for a total of seven, but no wage increase or other

change. Approximately 3,500 workers were affected.

"Wineries in the California grape belt agreed to finance a health and welfare plan covering approximately 2,000 workers (AFL). The union's request for a wage increase was denied.

"The existing contract covering some 3,000 paper workers (AFL) in 11 plants of the St. Regis Paper Company (one plant in Tacoma, Wn.) was extended another year without a wage change, with the question of wages opened to be raised again on 60 days notice."

The heaviest employment of the Pacific Northwest, the lumber, logging, plywood, pulp and paper, with other subsidiaries, appears to have passed the matter of wage increases on to some later period of the year (pulp and paper) or until spring, the decision in negotiations reported so far.

General in Northwest

Total employment involved in the states of Washington, Oregon, Idaho and Montana in these undertakings is around 120,000 people. In lumber and logging a recent study by the Bureau of Labor Statistics, shows mill clean-up men at \$1.43 per hour and watchmen at \$1.39 in the fir sawmills of the West Coast area with average wages of all crews studied, both sawmills and logging camps, \$1.70 per hour, with many workers earning more than \$2.00 per hour and fallers and buckers with power-driven tools making \$3.23 average.

Important renewals without wage changes are shown in the tables.

Three Rulings Against Pickets

In three successive rulings the Washington State Supreme Court has supported lower court injunctions against picketing employers not directly involved in a labor dispute. As a result, the teamsters' union in Seattle is enjoined against picketing Atlas Auto Rebuilding in an attempt to force that firm to conform to "union hours" and to pay that company \$250 damages.

The high court also upheld a lower court order prohibiting picketing of the George Cline used car establishment in Seattle by the auto salesmen's union to enforce closing hours.

In a third decision, the Supreme Court upheld the lower court prohibition of picketing of the merchant vessel Argo. This picketing resulted from a jurisdictional dispute between AFL Master Mates and Pilots and the CIO warehousemen.

In all of these decisions, the Supreme Court recognizes that in supporting picketing as a right of free speech, the court at the same time must recognize the constitutional rights of other parties involved.

WAGES WITHOUT WAGE CHANGES THIS YEAR

Penn Elec. Switch Co.	Goshen, Ind.	3/49	IBEW—A—400	6 paid holidays
Norma Electric Corp.	St. Joseph, Mo.	3/49	IBEW—A—800	Replaced incentive system with straight hourly rates
Manitowac Shipbldg. Co.	Manitowac, Wis.	4/1/49	AFL—1,800	3 pd. hol. wage reopening on 60 days notice
Calif. Metal Tr. Assn.	Northern Calif.	4/49	BISB—A USA—C—2,800	6 paid holidays
E. I. DuPont de Nemours & Co. (zinc smelting)	Spelter, W. Va.	4/1/49	UMW—(50) 250	Contract renewed, wage reopen. on 60 days notice
Wood & Brooks Co. (piano actions)	Buffalo, N. Y.	4/8/49	UFW—C*	*No. not given. Contract renewed; 1 add. pd. hol. (total 7); wage reopen. 60 days not.
*Shuron Optical Co. (scientific and prof. apparatus)	Geneva, N. Y.		FLU—A—350	*Prior to 3/1/49
N. E. Roadbuilders Assn. (50 contractors)	Massachusetts	4/49	AFL*	*No. emp. not given; rates laborers on heavy const. and highway projects frozen on state-wide basis until Aug. 1950
Building laborers	New Haven, Conn.	3/7/49	AFL—700	Contract extended 1 yr.; hourly rate \$1.55
Painters	Stratford, Conn.	3/31/49	AFL—300	Contract ext. 1 yr.; no change
Carpenters	Westchester Co., N. Y.	4/49	AFL—2,500	Hrly. rate \$2.65; Co. pd. welfare fund, 3 per cent
Painters	Westchester Co., N. Y.	4/49	AFL—1,300	Contract ext. 2 yrs. without change; hrly rate \$2.30
Ironworkers	Buffalo, N. Y.	5/1/49	AFL*	No. emp. not given; contract ext. 1 yr. subject to reopen
Bricklayers	New York, N. Y.	6/1/49	AFL—7,000	Contract ext. 1 yr.; no change; basic hourly rate \$3.20
Structural ironworkers	Newark, Elizabeth, Perth Amboy, Jer. City & Hackensack, N. J.	4/12/49	AFL—1,800	Contract ext. 1 yr.; no change; hrly. rate \$3 plus 10c in lieu of paid holidays
Painters	Baltimore, Md.	4/1/49	AFL—750	Contract ext. 1 yr.; no change
Asso. Gen. Const. & Gulf Coast Const. Emp. Coun. & Operating Eng.	Houston, Texas, area	4/49	AFL—1,500	Contract ext. 1 yr.; no change; hrly. rates \$1.875 lt. equip., \$2.125 heavy equip.
65 Sheet Metal Contr. Painting & Dec. Contr. Assn. (40 contractors)	Houston, Texas	4/1/49	AFL—600	Contract ext. 1 yr.; no change; hourly rate \$2.375
Painting & Decorating Contractors Assn. (40 contractors)	Rockford, Ill.	4/1/49	AFL—250	Contract ext. 1 yr.; no change; hourly rate \$2.00
Bricklayers, carpenters, cement finishers, electricians, fitters, oper. engineers, painters, plasterers & plumbers	St. Louis City and Co., Missouri	5/1/49	AFL*	No. employees not given; present pay scales to be continued
25 scrap iron co's	Detroit, Mich.	3/49	TCWH—A—2,500	Co.'s to pay 1c to union health and welfare fund
Portland Traction Co.	Portland, Ore.	4/1/49	SERMCE—A*	*No. emp. not given; min. retirement \$80 mo. Co. to pay difference bet. that and what R.R. retire. or S. Sec. may be.
Western Union Tel. Co. (land lines)	New York, N. Y.	4/1/49	ACA—C—5,000	Contract renewed 1 yr.; adj. considered to correct inequities for about 1,000

Pay Heed To These 11 Rules Now Competition Is Here

Price Properly

(1) Emphasis from here on must be on sales. Overcoming sales resistance is the normal thing in a competitive era. There is, ordinarily, a price level that will bring sales in. Customers will go for almost any kind of fair-quality goods. The demand is still there. Lower the price or give better quality.

Better quality is preferred over price cuts. Revise your promotion.

Along with the sales review, a check-up on distribution and methods would be advisable.

On this subject of sales, some of us older men had better get the book out and begin to refresh ourselves on the ABC's of selling. Just as in the banking business many of us have forgotten the old tried and true fundamentals of credit—it's been too easy—now we have to go back and read the book.

Easy to Lose the Touch

In talking with one of our manufacturers the other day, he said that he was very much worried about his sales manager—that he questioned his ability to sell in the days ahead—that he had been an order-taker so long that he was convinced he had lost the art of selling and had become soft and flabby from lack of sales exercise. He was serious, and did not really know what he was going to do about it—whether to promote him "upstairs" and take a chance on some of the younger men, or just what.

Reduce Risks

(2) We must shake ourselves loose from our dream of riskless business—we must now be more selective in our credit risks. Without affecting the well-established business enterprise, credit can and should be reduced or eliminated with respect to those firms which have been surviving only on the strength of inflation.

By T. W. JOHNSON

Vice President

Security-First National Bank of Los Angeles

Sell Service

(3) Take time for those businesses which have promise, and consult and guide them in their thinking toward sound fundamentals and business principles. They will be your best customers of the future. Salesmen and credit men have an equal responsibility in this regard. The salesman giving true service has a greater responsibility than loading his customers with merchandise.

Through the Wringer

Recently, a rather large retail concern went through the proverbial wringer via the bankruptcy route. This company had grown very rapidly immediately following the war through its apparent ability to obtain "hard-to-get" merchandise.



T. W. JOHNSON

Even as merchandise was beginning to back up in the pipelines and the manufacturer was working frantically to meet the surplus merchandise problem, the sales manager of the manufacturer loaded up his concern with all the merchandise he could possibly stand on his credit rating. Then, to make matters complete, he arranged to give him free flooring on thousands of dollars more of merchandise—free—that is, without an interest charge.

But, as usual, he paid plenty for the act of generosity. He bought the merchandise, come what may, and owed the money under the flooring plan. Well, he just couldn't pay his bills, and the creditors moved in, putting him through what is known in the parlance of the work-out loan man as the "laundering joy," i.e., bankruptcy.

Be Not Greedy

I would like to submit that it should have been the obligation of the sales manager to see that such a customer was not over his head—that he was not overstocked—to see to it that he kept his affair in proper balance. It would have been far better to have kept this concern alive, as a source of future business, than to number him among the dead and as a statistic in the failure column. I am sure that you must agree with me that hundreds of similar firms have been sacrificed on the altar of greed—to no one's advantage—and that hundreds more will follow.

Diagnose Difficulties

(4) Be constructive—analyze those firms which have gotten into trouble. If they are worth saving and should be saved—be a "doctor," not an "undertaker." It is just as easy, in the commercial credit field as in banking, to deliver the "coup de grace" to a business, salving the conscience with the old bro-mide "the first loss is the smallest."

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The real credit executive, and, may I add, sales executive, is one who can assist in seeing that a sound plan is put into effect and carried out for saving the business. We full well recognized that we cannot save all—it is socially useful that the weak sisters be sloughed off; but, what I am saying is, don't be a "hatchet man."

Check Credits

(5) Credit managers and sales managers should overcome the proverbial feud as return to competition ensues—don't overlook that you work for one and the same concern. If the account is not good for the credit manager, then it is not good for the salesman—it is just not good for the company!

Just a few days ago, in talking to a credit man about a large account on the books and which I thought to be a somewhat weak credit, he said, "Well, the sales manager kinda put one over on me. He had the carload all ready and on its way to be shipped before I knew anything about it. We were in need of the billing, and, as I didn't really have time enough to think about it, we let it go. I think we'll get the money but, undoubtedly, the credit is too high to that firm."

Make A Point

The credit manager should make it a point to get acquainted with the larger customers. I should think that he and the sales manager would make frequent joint calls on the trade. Again, I know one owner who, in many of his discussions, requests that the credit manager be present with the sales manager or salesman. He feels that he, too, can learn much from a mutual discussion, and, also, would avoid the possibility of entering an order and later having it turned down as to credit. He stressed the value of the exchange of ideas in these discussions.

Forecast Finances

(6) Financial planning is another factor to be given priority in preparing for competition. An eastern manufacturer was in my office not long ago, and he said that he was astounded by the lack of financial planning—and lack of budgets—in our local enterprises. He stated that he had always operated under a budget and forecast, and could not see how any firm could do business intelligently without one.

There is a concern, of modest size, whose directors, every month, gather in the president's office. They take the bud-

get of the previous month and compare it with the actual performance of that month; then, they recast the budget for the ensuing month, making any modifications necessary in the light of trends or developments. That, then, constitutes the management's pattern of operation for the following month—and it is strictly adhered to.

Ferret Facts

(7) We must never forget that one of the principal reasons for losses is failure to get facts—"Get the Facts—or the Fact Will Get You!" This is another way of saying that if you don't get the facts, you are apt to have a loss. Any credit man can attest to this truth—and this will be especially true in the period ahead.

Audit Accounts

(8) Management must know what makes up the balance sheet, and also realize that accounting is not an exact science.

A short time ago, one of our customers, in having a survey made of the assets of his business, preparatory to selling it, discovered that the inventory was carried in his balance sheet at a figure of \$150,000 in excess of its value. This was not due to obsolescence, but purely on the basis of accounting errors in not relieving the inventory on a proper basis.

Staggering Blow

The net worth of the company was approximately \$400,000, so that this reduction in net worth came as a staggering blow, both to the management and to ourselves, as a creditor. This happened notwithstanding the fact that the books of the concern had been regularly audited. Were it not for the cooperation of the bank in working out the problem, immediate bankruptcy would have resulted, with loss to the owners, and, possibly, to the bank.

In another instance, it developed that a certain manufacturer was including in factory overhead an amount equivalent to 400% in direct labor, whereas, 150% was the usual factor used in this type of business. This differential, obviously, was no asset, and, in fact, when the goods were finally shipped, and the adjustments made in the inventory account many months later, a very sizable loss was reflected. Here, again, this might have resulted in bankruptcy were it not for the cooperation of the creditors and the bank. Any business can show a profit in its operating statement if it capitalizes all of its expenses. A businessman must realize what figures mean, and look

behind the figures to make sure that he is not being deceived.

We can't afford to have these things happen any time—let alone in a competitive era.

Challenge Costs

(9) Management must know its costs.

A food processing business lost \$250,000 over a period of two years through losing $\frac{1}{2}c$, 1c or $1\frac{1}{2}c$ a pound on its product. It did not know its costs. The head of the business was a super-salesman, but lacked appreciation of accounting records.

In the office of the president of one company, a few days ago, I saw a sign, which, I think, is especially applicable these days—it said:

"Count that day lost whose low
descending sun
Finds quotations made at cost
and business done for fun."

Develop Deeply

(10) Research and product development will assume even greater importance. Products must be constantly improved, with due regard for eye appeal. The buying public has become more selective. A business must stay ahead of the market on sales effort and design. Here, again, common sense and balance is required so that too much expense in this direction does not scuttle the boat. Likewise, management must make sure that the engineering is tried and tested, so that the product will stand up before being placed in the hands of the consumers.

Stay in Your Field

How many businesses have found this to be their Waterloo! I am thinking now of a concern that made considerable money in other fields, and then went into making an item for the building trade. In some unexplainable manner, engineering was faulty and was not caught until the company had produced hundreds of thousands of dollars in business and had shipped it to the customers. They did not fit—they were not to specification—with the result that shipments were refused by the purchasers. The dollar amount, as I said, was in the hundreds of thousands, and this was sufficient to bankrupt the concern.

Chase Collections

(11) Finally, to the credit men, I suggest, as to all credits, the necessity of follow-up, Follow-Up, FOLLOW-UP! See that payment is made according to the terms, or determine what the trouble may be. Do not wait until dry-drot sets in and collection becomes doubtful—if not an actual loss incurred.

NEW PRODUCTION TECHNIQUES

Practical Solutions for Tricky Manufacturing Problems

PACKAGING WRINKLE IRONED OUT

By NOEL E. BLAZER
Section Engineer
Westinghouse Electric Corporation
Sunnyvale, Calif.

PACKAGING sells the product. But dressing up a homely unit such as an electric heater sometimes presents difficult problems in tooling and manufacturing. When Westinghouse Electric engineers at the Sunnyvale plant found themselves face to face with such a poser (forming of the outside casing for their home heaters), application of a remarkably simple and effective machine provided a neat solution.

This casing is actually in three sections: two identical end pieces and a center piece. The end pieces are relatively simple to form in drawing dies. The center piece, however, is heavily perforated and varies in width. Its edges must be off-set to make a proper lap joint with the end pieces. And the sheet must be formed to fit the edge of the end pieces.

If they made the edges first, on a break type of machine, as would ordinarily be done, they would of course distort the edges and flatten them out during the subsequent curving operation. If they first curved the sheet on a forming machine, then tried to put in the edges, they would run the risk of distorting the entire formed curve. With a highly perforated sheet, this would at best be a risky and slow procedure.

It became obvious that some means had to be devised to do both operations, however dissimilar, at the same time. The method adopted, which uses a special machine, provides an excellent solution to this challenging production problem. It was devised only after careful consideration by engineering, tooling and manufacturing people, of the various possible ways of forming these center pieces.

Both oval-shaped end plates mounted on the lower shaft of the machine illustrated are made so as to overbend the sheet on the shorter radius to allow for spring-back. These plates have an off-

set milled into their rims, and guide strips at their outer edges to confine the sheet. These end plates are adjustable along the shaft with proper spacers to accommodate various sheet widths.

• This compact machine was designed by Westinghouse ingenuity to form casings for home heaters. Push-button controlled, it turns them out at one per minute.



The upper shaft is provided with vertical travel to permit it to follow the contour of the lower plates which move it against a dead weight. This shaft carries two end rollers having off-set rims to match the off-set in the lower plates, and proper spacers between these rolls. When the lower shaft is turned, rollers on the upper shaft follow the contour of the end plates exerting a fairly constant pressure throughout the revolution.

When a sheet is rolled through this machine, the edges are off-set and the sheet is formed so that it can be fitted perfectly into the end pieces. The operator has push-button control of the machine to stop it at the end of the forming cycle where the formed sheet is removed and an unformed sheet is put in place for forming.

This machine is simple and compact. Time required to pass through the forming cycle is less than one minute, which provides ample productive capacity. It does its complicated special job perfectly.

PRODUCTION BOTTLENECK DRILLED THROUGH

By G. W. HILTON
Small Machines Foreman
Westinghouse Electric Corporation
Sunnyvale, Calif.

Extreme diversification of plant production, covering a wide range of electrical and mechanical apparatus, often presents interesting problems for our small machines operation. One of our most important continuing assignments is that of drilling many different types and sizes of holes in various steel plates and housings. These high volume jobs must be done quickly to avoid production delays.

It was often difficult to keep on schedule — until we devised, for this operation, a special application using an adjustable index table with a vertical radial drill.

In the past, when we employed the conventional type of horizontal boring mill for this work, we usually had a great deal of setting-up time for each of the many repeated operations. It was hard to feed coolant to the drill and to load the pieces, many of which were quite flexible and difficult to clamp into position. Such units have sufficient "give" to make them spring back to a different shape when they are removed from the machine. Therefore, we had to take extra care to make sure that bearings on both sides of a housing would be in proper alignment.

We found that the conventional horizontal boring mill was too slow and awkward for most of our multiple drill-jobs.

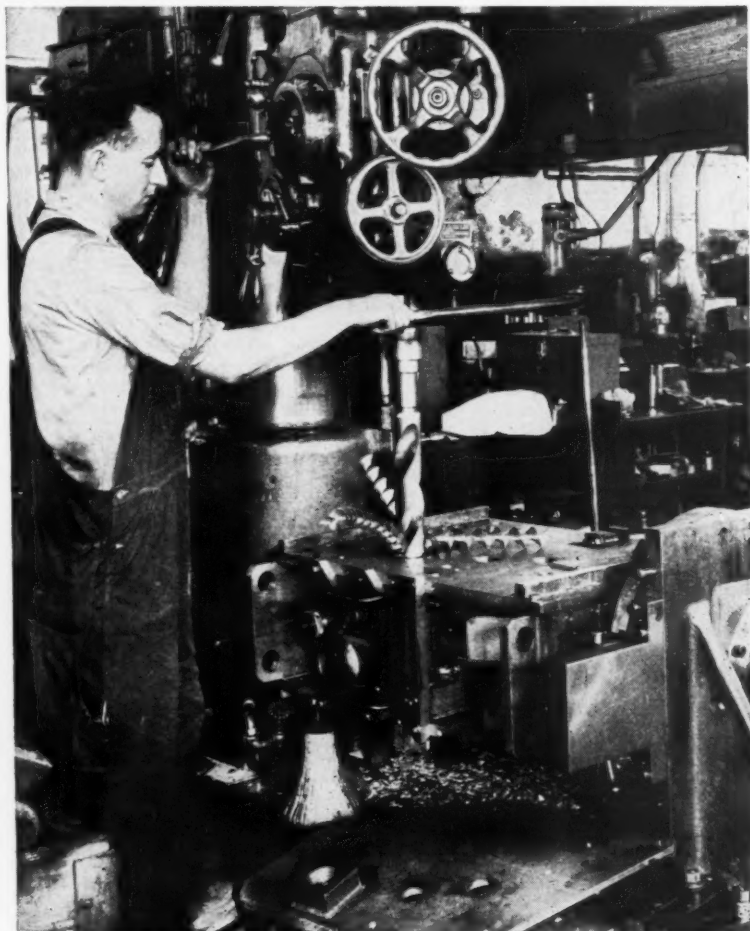
New Application

To solve our problem, we developed a new application of an adjustable index table with a rotary drill press which has made it possible for us to speed up our drilling work by about 60 per cent. The operation is basically very simple; the jig containing the piece is placed on the table, which turns on a vertical plane. The drill head can be quickly placed into position for any number of holes desired on the top surface. When the top surface is finished, the jig, and the piece inside it can be "flopped" in a few seconds with the aid of a hoist.

Once the machine is set up for the work and checked to make sure it is level and accurate, the operator merely has to use the constant locator settings for any number of subsequent operations. Furthermore, duplication is automatic for both sides. The accompanying picture shows the use of this method for drilling a plate for a circuit-breaker housing. This piece, incidentally, is one of the "flexible" units which are so difficult to load and clamp on a horizontal boring mill. A completed unit, which has been removed from its jig, is shown resting on the floor in the foreground of the picture.

Drilling of each hole in the unit shown actually embraces several different operations, including drilling, reaming, counter-boring and tapping. The machinist is drilling the final hole on the top side. When that is finished, he turns the work over—or "flops" it—in a few seconds, and continues on the other side. The entire drilling job on the two surfaces takes about 1.8 hours.

• Drilling multiple holes on a production basis was a Westinghouse bottleneck until this adaptation of an adjustable index table was developed. Result: 60% speed-up.



THE WEST ON ITS WAY

ARIZONA

ARIZONA FIRM BUYS HEATER PLANT—Palmer Manufacturing Corporation, Phoenix, have recently bought the Pacific and Superior Heating Divisions of Naco Manufacturing Corporation of Los Angeles, to produce a complete line of gas-fired heating equipment. Naco is a subsidiary of the Grace Steamship Lines.

NEW MINE FIRM—Willdee Mining Corporation has just been formed in Tombstone, with incorporators listed as: Francis J. Ryley, and George R. Carlock, both of Phoenix. Mel D. Michael is secretary. Capital stock listed was 200,000 shares, with a \$1 par value per share.

NORTHROP DENIES—current persistent rumors that Northrop Aircraft is planning to take over a Tucson factory for jet fighter production have been labeled "entirely untrue" by Oliver P. Echols, board chairman and chief executive officer.

STUDYING CLAYS—A joint project is being carried on by the Arizona state chamber of commerce and the state Department of Mineral Resources to determine by analysis if the clay samples taken from various parts of the state have commercial value.

ARIZONA BOUNCE—The Advance Spring Manufacturing and Never Sag Coil Spring Company of Los Angeles establishes a plant at 2040 East Washington St., Phoenix.

K-P AT HOME—The K-P Manufacturing and Distributing Company is now under way in part of the Aviola Building, South 28th Street, Phoenix, producing a portable water softener which can be attached to any ordinary water faucet.

7500 KW GENERATOR—The Salt River Valley Water Users Association has a new 7500 kilowatt generator, at a cost of \$850,000, at the Tempe plant of the Association.

SANTA FE ECONOMIZES—Effective July 1, Santa Fe Railway's Arizona division, headquartered at Needles, will be absorbed by the Albuquerque, Los Angeles, and Valley divisions, in an economy move brought about by increased wages, additional expenses in connection with the 40-hour railroad week to go into effect in September, and some decrease in business.

SHHHHHHHHHH—Aero Manufacturing Company has formed a \$5,000,000 Arizona corporation for the purpose of making and handling "aero-projects." Listed as incorporators are: J. A. Murphy, Phoenix attorney, Floyd Stahl, also a Phoenix attorney, and Pete Waggoner, Tucson.

MECHANICAL JUPITER PLUVIUS—Precipitation Control Co. of Phoenix, local rain-making firm, has been awarded contracts to engage in three rain-making projects in Mexico, similar to operations they have been conducting for some time around Arizona.

CALIFORNIA

TUBE TURNS MOVES—Los Angeles branch office of Tube Turns, Inc., manufacturers of Tube-Turn welded fittings and flanges, moves to Suite 447 in the General Petroleum Building, 612 South Flower St. Phone MAdison 6-2319. Manager is Norton P. Boesemer.

S.P. STREAMLINER TO PORTLAND—Southern Pacific will begin on July 10 a 15½ hour schedule from San Francisco to Portland with their new Daylight streamliners. Two 15-car lightweight diesel trains, about a \$5,000,000 investment, will cut three hours from the best present schedule for the 718 mile run.

¼ MILLION NAVY CONTRACT—Interstate Engineering Corporation, El Segundo, has been awarded a \$250,000 Naval aviation supply contract for airplane armament parts, bringing their present backlog of this nature up to over one million dollars.

HELICOPTER PASSENGER SERVICE—Los Angeles Airways, Inc., the firm currently providing interurban airmail service to 43 cities in southern California, has filed application with the C.A.B. requesting authority to start interurban passenger service to most of these same cities. Plan is to start with a run from downtown Los Angeles to the airport, 10 miles distant, with ultimately a five-minute service to the airport.

308 MEN IN FLYING BOAT—The Navy's giant Marshall Mars, a 165,000 pound seaplane, recently established a new world's passenger record by flying 301 passengers and a crew of seven men from San Diego to Alameda.

BENDIX BRANCHES OUT—Pacific division, Bendix Aviation Corporation, has broken ground for their second plant, a \$750,000 plant, on a site adjoining the present plant at Lankershim boulevard and Sherman Way. This new factory will produce industrial hydraulic equipment exclusively.

STOCKTON FOOD PRODUCTS CINCH SARDIK—Stockton Food Products Co. have leased with option to buy the Sardik plant at Turlock.

FLY YOURSELF PLAN—Airfleets, Inc., San Diego, is negotiating with domestic airlines to lease modern transport planes to them as an alternative to the airlines purchasing the expensive craft. Convair-Liners will be the first transports leased, but Airfleets, Inc. intends to extend the benefits of this plan to other modern transports, according to W. C. Rockefeller, vice president of the firm.

NATIONAL STEEL OPENS OFFICE—National Steel & Shipbuilding Corp. is now located in Los Angeles at 2756 Rowena Drive.

SUPERCOLOSSAL JET HELICOPTER—At Howard Hughes' Culver City plant, the Air Force is having constructed a twin-jet 10-ton minimum lift helicopter. The aerial giant has blades 136 feet from tip to tip, powered by about 4,000 hp. J-35 jet engines. Craft designation is XH-17.

LOCKHEED IS BUSY—T.W.A. has ordered 20 additional Constellations from Lockheed Aircraft Corp., at a cost of \$20,000,000. This order, with military orders already on file with Lockheed, will keep the firm producing at the present rate through 1950.

PIPELINE AUTHORIZED—Federal Power Commission has authorized construction of an 85-mile pipeline by the San Diego Gas and Electric Co., and the Southern Counties Gas Co. This new line, to be built at a cost around \$4,230,000, will be connected to another pipeline to bring an additional 40,000,000 cubic feet of natural gas per day into San Diego the Texas panhandle field and Permian basin in Texas and New Mexico.

HELICOPTERS IN PRODUCTION—United Helicopters, Inc., Palo Alto, now has commercial production of three "Hill 360" machines weekly. Present output is mainly for export under South American orders.

SOUP PRODUCTION—Sunset Macaroni Co., Stockton, will soon begin manufacturing several varieties of dry packaged soup.

WESTERN INDUSTRY—July, 1949

THE WEST ON ITS WAY

PAPER BAG PLANT—Ames Harris Neville Company, located on Eighth Street between Parker and Carlton Streets, Berkeley, is in operation manufacturing multi-wall paper shipping bags for building materials, chemicals, and other products. The firm has factories at San Francisco, Portland, and Los Angeles, to manufacture textile bags and canvas products.

ARON CANNING EXPANSION—Aron Canning Co., on the Eight Mile Road, Stockton, announces a \$250,000 expansion, which will nearly double their capacity and will provide additional work for about 375 persons during the canning season.

RICHFIELD GUSHES—Richfield Oil Company recently brought in the Homan well in Cuyama Valley, delivering 5,088 barrels of 34 gravity oil and 1,500,000 cubic feet of gas per day. This well is about six miles from the Russell Ranch area, where Richfield made a discovery last June.

METAL TEXTILE FIRM—Metal and asbestos heat insulating blankets for jet aircraft engines will be manufactured by Metal Textile Corp., Roselle, New Jersey firm, in their new plant at 3583 Hayden Ave., Culver City.

AIR FORCE CONTRACT BUSINESS—A field office for the Air Force Procurement program to serve northern California industries will soon be established in downtown Oakland. At present, contact may be made by addressing: Air Force Procurement Office, c/o Aircraft Engineering & Maintenance Co., Oakland Airport. Further information may be obtained by calling Oakland, phone Lockhaven 9-3223, local 175.

UC PHYSICS BUILDING—Ground will be broken shortly for another major postwar building on the Berkeley campus of University of California, a \$1,200,000 addition to the Physics Building.

PISTON PLANT—Jahns-Hill & Co. have established a new modern plant at Santa Ana to manufacture a complete line of pistons for truck, tractor, marine, and industrial engines. The use of streamlined production methods and specially designed equipment will permit fast delivery at low cost. The firm has on hand patterns for a great many of the older, more obsolete pistons and will specialize in production of these items that cannot be found elsewhere.

HARBOR DEVELOPMENT—Plans for a \$5,663,000 harbor development at Port Hueneme have been approved by the Army Engineers office, with costs to be shared between local and Federal governments.

PEA PACKER POSTPONES—San Bruno plant of McMillan Canning Co. will not operate this season, giving the freight as a factor in drying up of markets.

SPRECKELS SUGAR EXPANSION—\$1,000,000 in plant improvements scheduled, mostly at Salinas. Continuous diffusers to be installed there and at Woodland, and liquid sugar facilities at Salinas and Manteca.

60,000 KW GENERATOR—Bechtel Corp., San Francisco, has been retained by Utah Power & Light Co. to engineer and supervise construction of a 60,000 kilowatt steam electric generating unit, first of three units, in Salt Lake City. Construction, to start this summer, is scheduled for completion in 1951.

DIAMOND MATCH GROWS—Diamond Match Co. has purchased Keyes Lumber Co., at Keyes, and Sullivan & Larson lumber yard at Rio Vista, a building supply business and lumber yard. This brings Diamond's total up to 104 retail yards.

ATLAS DIESEL BUYS LORIMER—Atlas Imperial Diesel Engine Co. has acquired the manufacturing assets of Lorimer Diesel Engine Co. of Oakland, and Atlas will manufacture and distribute the Lorimer engines under the newly established Lorimer division, headed by Ralph S. Lorimer.

16 MORE CONSTELLATIONS—Lockheed Aircraft Corp. has received orders for 16 additional Constellations, from four foreign airlines. Air France has ordered six, Royal Dutch Airlines (KLM) has ordered four, India has ordered two, and South Africa has ordered four.

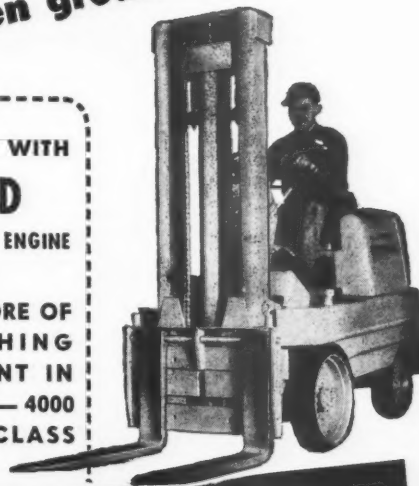
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THE WEST ON ITS WAY

PACIFIC ELECTRIC MOVES—Pacific Electric Motor Company is now established in their 30,000 ft. office and shop building at 1009 66th Ave., Oakland.

TANKER REPLACEMENTS—Union Oil Co. will shortly start to replace their tankers on an orderly and long range basis. The firm owns seven tankers, with the first replacement to be started in 1950 if the plan is approved.

SANI-MODE SOLD—Sani-Mode Manufacturing Co., 4202 S. Avalon Blvd., Los Angeles, has been purchased by Hygiene Shower Curtain Mfg. Co., New York. Name will be changed to Hygiene Shower Curtain Mfg. Co. of Calif., and the new firm will produce shower and window curtains, garment bags, and table covers for sale in the 11 Western states. Local operations will be directed by Joseph Hershon and Morris Gorin.

FLY WITH A COOL HEAD—United Airlines fleet of 39 Mainliners (DC-6's) is being painted white on top of the fuselages. Reflection of sunrays by the white enamel results in passenger cabins being as much as 15 degrees cooler during loading at terminals. The white fuselage tops will soon be seen on all Mainliners, and ultimately the DC-4's and DC-3's will also be included.

URANIUM IN DEATH VALLEY—Roscoe Wright, "Death Valley Curly," and L. S. Barnes report discovery of a uranium-bearing orebody in Inyo county, somewhere in the vicinity of Death Valley. Average content appears to be about 10 pounds of uranium per ton, which gives this ore mass a value of \$35 per ton, at that rate.

CANNERY CAN CAN—Turlock Cooperative Growers, Modesto, has been approved at the third hearing before Federal Court for 1949 operation of the facilities of the Riverbank Canning Co., with option to continue through 1950. Headquarters will be at Turlock Cooperative offices in Modesto, with all sales handled through the San Francisco office, headed by W. P. Mullen.

DRAPERY HARDWARE EXPANDS—Drapery Hardware Co., Ltd. acquired from A. W. Brokate a modern 20,000 foot building on a two-acre site in the Monrovia industrial area, with Santa Fe railroad service. The firm will continue the same operations as were handled in their Vernon plant, but on a larger scale.

KURTIS SPORT CAR—Kurtis-Kraft, Inc., 4625 Alger St., Los Angeles 26, have started to produce a limited number of low-slung 100 inch wheelbase sport cars, with engines of 82 to 160 horsepower adaptable to the chassis. This car will also be available in kit forms for customer assembly, with no special tools or skill required. Kurtis was the top builder of racing cars in southern California.

COLORADO

PALISADE CANNERY—Kuner-Empson Canning company expects to employ between 250 and 300 persons at the plant they have leased in Palisade. R. S. Bell, production superintendent, said that Kuner-Empson had signed a lease with the Colo-Flavor Canning company, the owners. K-E will run the plant to capacity, with operations concentrated on peaches, but some tomato products, mainly juice, will be processed.

ROEBLING WAREHOUSE—John A. Roebbling's Sons plan to construct a warehouse at East 48th Ave. and Jackson St., Denver, to be ready for occupancy by August 15. The one-story building will be used to store and handle wire rope and electrical fittings manufactured by the firm, to provide more immediate delivery of their products in greater quantities to the growing demand.

IDAHO

SANDPOINT PULP MILL PROSPECT—A \$30,000,000 pulp mill for the Inland Empire may possibly be constructed in the Sandpoint area, according to the Sandpoint chamber of commerce. Name of the principals was not revealed.

THE WEST ON ITS WAY

GLITTERING STUFF IN IDAHO—Preparations are under way to begin dredging for recovery of flour gold along the Snake River, opposite U. S. Highway 30, 41 miles west of Pocatello. A newly-developed dredge, housing 14 of what Arthur Johnson, its inventor calls "gyratory concentrators," is expected to revolutionize the business. George Fenton, Boise, pioneer intermountain "gold boat" operator, built the dredge.

90-MILE POWER LINE—A new \$650,000 90-mile electric power line will be constructed this summer, running from Armstead, Montana, to Salmon, Idaho, and from there to the cobalt mine of Calera Mining Co., Howe Sound subsidiary, near Forney, Idaho. As soon as milling facilities and power sources are provided, Calera will start large scale production of cobalt.

IDAHO POWER CO. EXPANDS—Idaho Power Co. has purchased the Malheur Cooperative Electric Association, Vale, Oregon, including their 400 miles of line serving 640 customers in Malheur and Baker counties in eastern Oregon and Payette county, Idaho.

PICTSWEET SELLS—Canning plants in Buhl, and also in Ellensburg and Waitsburg, Washington, were sold by Pictsweet to Minnesota Valley Canning Co., Le Sueur, Minn., for a reported \$1,040,000.

AEC SPOTS REACTOR PLANT OFFICE—Idaho Falls has been selected by the U. S. atomic energy commission as headquarters for its operations office for the new national nuclear reactor testing station.

FIRST AEC CONTRACT LET AT ARCO—Atomic energy commission at Arco, site of the new 400,000 acre nuclear reactor testing station, has let the first contract to A. J. Schonover & Son, Burley, Idaho, for well construction. A.E.C. estimates that construction expenditures for this project will total several hundred million dollars.

STIBNITE SMELTER—Bradley Mining company's antimony-gold smelter at Stibnite, about 100 miles north of Cascade, the nearest railroad point, started the roaster section last month, and the electric furnace is expected to start operating this month.

OHIO MATCH MOVES—Ohio Match Co. has completed moving of the Spokane match block plant to Huetter, near Coeur d'Alene. This new plant now contains all manufacturing operations, from the log to the finished match block.

MONTANA

GAS CONTRACT SIGNED—Montana-Dakota Utilities Co. has signed a contract with Pure Oil Co. for the purchase of gas from the Worland unit area, an oil and gas field near Worland, Wyoming, now under development by Pure Oil Co.

\$8 MILLION PIPELINE—Montana-Wyoming Gas Pipe Line Co., a new firm to be publicly financed, is being formed to construct a pipeline from the Worland, Wyoming area to connect with the Montana-Dakota Utilities Co., who will lease and operate the pipeline facilities. Construction is scheduled to start early this fall.

BREWERY EXPANDS—Sicks' Great Falls breweries building at 410 - 14th St. southwest, is about to have a 104 by 60 foot concrete warehouse addition built, at a cost of \$40,000.

ROUNDUP LUMBER CO.—The Roundup Lumber Co. has recently opened in Roundup on highway 6, headed by Charles A. Seiss, formerly with Monarch Lumber Co., Cut Bank.

ANACONDA COPPER BUILDS—Anaconda Copper Mining Co. will expand their Great Falls Reduction Works with the construction of \$1,800,000 in additional facilities, with completion of the project scheduled for July, 1950. A plant to cast copper billets will be installed, and an additional unit to the zinc processing department.

July, 1949—WESTERN INDUSTRY



"These linens, rugs and that old bed Should be replaced," the owner said.



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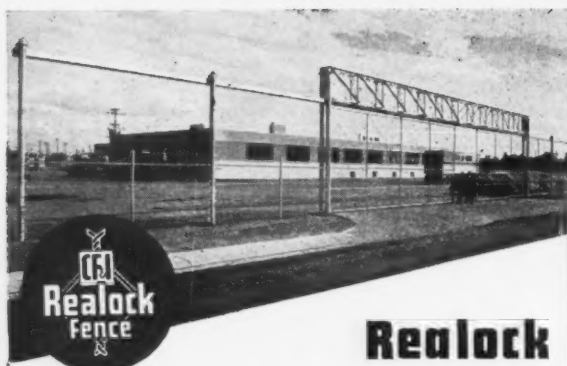
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THE WEST ON ITS WAY

NEVADA

GELATINES FIRM IN BASIC—Gelatinex, Inc., a new firm, is expected to start operations at Basic this month. The company will use a process which is in successful commercial operation in England, and English machines, shipped here for the purpose, will be used in the processing of gelatinex.

CARSON CONCRETE INDUSTRY—Carson Concrete Products, a new industry in Carson headed by Bjarne Pederson, recently opened for business. A mobile mixing truck will deliver concrete on the job.

NEVADA BUYS MANGANESE PROPERTY—Purchase by the state of Nevada acting through the Colorado River Commission, of the extensive holdings of the Manganese Ore Co., in Clark county, is announced. This property was acquired through the War Assets Administration as a part of the Basic Magnesium plant.

MAGNESITE ORE PLANT—Standard Slag Co. of Youngstown, Ohio, has started construction of a plant for manufacture of finished magnesite products in the Gabbs district. The plant is expected to be in operation by September 1, and it is expected that the firm will produce 50 tons of finished products daily for use in steel and other industries. Standard Slag is shipping approximately six cars of magnesite daily to San Francisco, for transfer to Japan.

RAWHIDE CYANIDE PLANT—Rawhide Queen Milling Co. has completed construction of a cyanide mill in the Rawhide district. This new plant is designed to handle 50 tons of ore daily, and the firm is said to control enough raw material properties to keep the plant steadily operating three to four years.

URANIUM PROJECT—Nevada Uranium Production Company, first firm in Nevada with a development program for uranium-bearing ores, has started a winze from the tunnel level on the Rainbow group of seven claims it has under option. Eleven samples taken from the 352-foot tunnel about 30 feet apart all showed radioactive indications.

NEW MEXICO

NEW TOWN ERECTED—New Mexico Timber Co., in a modernization project, is putting up a new mill and constructing a new town in the Jemez mountains area of Sandoval county. The mill and town are named Gilman. Employment for 75 to 100 men will be provided at the mill and in the woods. Six old busses have been obtained for housing the men who will live in the timber area. In the town of Gilman, New Mexico Timber Co. has already constructed nine four-room houses, and plan to put up eleven more five-room homes. Fifteen cabins, each to house two men, afford bachelor quarters. A mess hall has been built, and another building is being converted into a school. A church, postoffice, and modern store are also in the plans.

ATOMIC ENERGY LABS TO MOVE—Re-location of the Los Alamos atomic energy laboratories to a site in the Jemez mountains has assumed definite proportions, with bids requested for a \$2 to \$3 million laboratory. Bids are invited on Project CMR-10, Technical Area 35, Los Alamos, for constructing building with facilities including roads, special and laboratory equipment, etc. Inv. No. 291-49-150. Write U. S. Atomic Energy Commission, Contract Br., Los Alamos, N.M.

SANDIA BASE MAY GO COMMERCIAL—Sandia Base, near Albuquerque, the secret weapons testing branch of Los Alamos laboratories, may soon be relinquished by its present operator-contractor, the University of California. Operation of Sandia's engineering-type program by a commercial firm may be considered more beneficial, with the University concentrating on its more academic Los Alamos research program.

OREGON

LONG BELL LUMBER BURNS—Fire recently destroyed Long Bell Lumber Co.'s large wholesale and retail yard at Eugene, with loss estimated at \$250,000.

THE WEST ON ITS WAY

POTATO FIRM EXPANDS—Expansion of Deschutes Valley Potato Company in Redmond, Madras, and Culver is announced. The firm has purchased a site for a potato warehouse and grading plant at Madras, with construction to start next year. They have also bought a 550-foot spur track from Union Pacific and has leased the right-of-way. A 300 by 600 foot warehouse will be built. At Redmond a 120 by 80 foot concrete block building is under construction to supplement the present storage building. With these increased facilities, the firm will be able to handle a capacity of 2500 cars of potatoes this fall, with a still further increase next year.

PAPER PLANT LEASED—Container Corporation of America is negotiating to take over operations of Columbia Paper Products Co.'s plant at 934 N.E. 25th Ave., Portland, with Dan P. Keane named office manager. There will be no personnel change in the plant, which produces corrugated and folding boxes.



ABOVE—New retail sales and service building for industrial trucks of the Hyster Company, at 5301 Pacific Blvd., Huntington Park, California. The concrete structure covers 7500 square feet, and includes a show room, parts and service departments, offices and an adjoining 40 x 75 foot storage area.

COCA COLA BUYS SITE—Coca Cola Co. has bought a five-acre industrial site in Portland, in addition to their present holdings in the city. No immediate plans are definite to build on the site, but possibly will become evident when building costs decline sufficiently, or if the business situation warrants.

UTILITIES HIKE RATES—Portland General Electric Co. and Pacific Power & Light Co. were granted electric rate increases, the first in nearly 25 years, to go into effect at the next billing. All-purpose rate has been boosted about 11 per cent; residential rates about 6½ per cent.

NEW MILL PLANNED—Ellingson Lumber Co. has requested the city of Klamath Falls to sell six acres for a site of a new planing mill, in West Klamath on the Great Northern Railroad.

CO-OP TO EXPAND—Rural Electrification Administration has granted a \$925,000 loan to the Benton-Lincoln Electric Cooperative, at Corvallis, for expansion of their facilities.

CANNERY IN BANKRUPTCY—Starr Fruit Products Co., 105 S.E. Yamhill St., Portland, has filed petition in bankruptcy in the United States district court, with assets listed at \$448,274 and liabilities at \$518,912. The firm has plants at Portland, Salem, Yakima, Washington, and Sunnyside, Washington. Officers of the company are: Robert E. McCaughern, Lake Grove, president; Henry C. Hohwiesner, vice president; and John Ross, secretary-treasurer, both of Portland.

UTAH

TV TUBES—16 inch television picture tubes will soon be in manufacturing production at Eitel-McCullough's Salt Lake City plant, as soon as tooling is completed.

OFFICE BUILDING—Chicago Bridge & Iron Co., Salt Lake City, is having constructed a \$125,000 office building, 50 by 130 feet and two stories high.

July, 1949—WESTERN INDUSTRY

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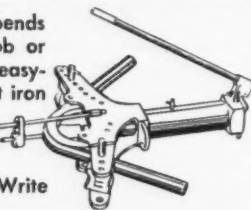


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THE WEST ON ITS WAY

NITROGEN FERTILIZER—Simplot Fertilizer Co., Salt Lake, has started producing nitrogen fertilizer, and within 18 months the plant expects to employ between 75-100 men.

VARNEY CANNERY EXPANDS—Varney Canning Co., Roy, has purchased the Veradale, Washington plant of Spokane Valley Canning Co. A. T. May will continue as superintendent, with plans underway to double the plant's capacity as soon as possible.

RADIOACTIVE ORE DISCOVERY—More than fifty claims in southeastern Utah are being worked by prospectors. The search for uranium ores with as little as one-twentieth of one per cent uranium centers in White Canyon. Vanadium Corp. of America's mill, across the Colorado River from Hite, shortly will go into operation with equipment to process ores.

WASHINGTON

HANFORD WORKS SPUR TRACK—Freight shipments to Hanford will be facilitated by a new railroad connection that will run from the Union Pacific Railroad to the works area. Plans and specifications include three bridges with approach trestles, and 7½ miles of mainline railroad track and sidings.

LOG BOOM FIRM—Chehalis Boom Co., Aberdeen, is a new company organized to construct, maintain and operate booms for booming, rafting, and sorting logs. Capital was listed as \$35,000, and incorporators are Lee Hunley, Eugene M. Spradlin, and Sarah P. Spradlin, of Aberdeen.

QUICK-FREEZE—Richey & Gilbert Co., Yakima, announce plans for a new \$500,000 plant, including space for canning and quick-freezing.

GYPSUM PLANT—Columbia Gypsum Products, Inc., announce plans for construction of a \$200,000 gypsum grinding and plaster plant in Spokane valley north of Greenacres. The plant will have a capacity of 500 tons a day. Raw materials will be supplied from British Columbia, processed in Spokane, and sold in Washington, Idaho, and Oregon. A 205 foot addition is to follow this present construction program, and will house equipment of the wallboard and lath plant.

LONG-BELL BUYS—Long-Bell Lumber Co., Longview, has bought the retail lumber yard of Mogan Lumber Co., Eugene, Oregon. The Mogan yard will replace a retail store recently destroyed by fire, as reported this month in Oregon.

NAME CHANGE—Tacoma Plywood Corp., Tacoma, has changed its name to Rainier Plywood Co., to avoid confusion with other company names. Officers of the firm remain as heretofore.

SHELL TO SPEND \$2½ MILLION—Shell Oil Company will spend \$2,500,000 in the next year to expand Inland Empire distribution facilities. The money will be used for new service stations, new bulk storage plants, new delivery facilities, and new coast marine terminals.

SEATTLE FREE TRADE ZONE—The Port of Seattle has been granted a free trade zone by the federal government. Four warehouses at the East Waterway Terminal will be used for both warehouses and storage.

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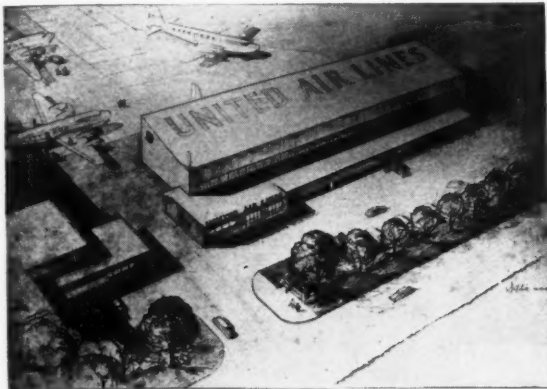
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THE WEST ON ITS WAY

NEW WEYERHAEUSER TRACT—Weyerhaeuser Timber Co. is building 13 miles of new logging road into a large timber tract at the headwater of the Kalama and Coweeman Rivers. First mature trees will be cut next year.



Above: Architect's conception of the new nose hangar which is to be the first unit under construction at United Air Lines' new Seattle-Tacoma Airport, on which work starts July 1.

FT. LEWIS \$6½ MILLION EXPANSION—About \$6,700,000 will be spent in an expansion program for Fort Lewis, including construction of housing, utilities, streets and walks, and landscaping, and Willapa Harbor Lumber Mills into Weyerhaeuser Timber Co.

WEYERHAEUSER MERGER—Merger of White River Lumber Co. has been recommended to shareholders of the three companies. Weyerhaeuser owns majority stock in both companies, and the mergers would provide operating economies.

HANFORD MILITARY POLICE—Army troops are soon to be stationed at Hanford Plutonium Works for security duty. The M.P.'s will provide protection for the area where the new half-billion dollar plutonium plant now under construction will supplement the original \$350 million wartime plant.

PALLETIZED PACKING PLANT—Richey & Gilbert, Yakima, plan construction of a series of units which will cost approximately \$500,000. First unit, a palletized packing and storage plant costing \$150,000, will be begun this summer.

WIRE WORKS EXPANDS—Pacific Wire Works, Seattle, is building a new 10,800 foot wing to house the "Pacific 4-S" spring steel wire division. This additional space will more than double the present production capacity.

FURNITURE MERGER—Lynch Furniture Manufacturing Co., Seattle, has purchased Pacific Mattress & Upholstering Co., Seattle.

DIAMOND MATCH EXPANDS—Diamond Match Co. plans improvements to its Newport, Washington plant, including doubling the present planing mill capacity, addition of six more dry kilns, installation of new lumber stocking and unstacking equipment, and construction of storage sheds.

WYOMING

H2S EXTRACTION PLANT—Texas Gulf Sulphur Company is having constructed at Worland Dome, Washakie County, near the town of Worland, a gas treating plant to extract the hydrogen sulphide from natural gas coming from wells operated by Pure Oil Company. Extraction will be by means of the Girbotol process developed by the Girdler Corp. All materials and supplies available from local sources will be purchased in Wyoming.

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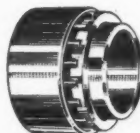
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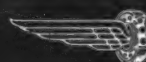
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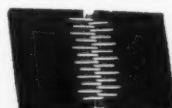
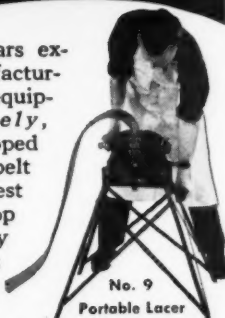
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WESTERNERS AT WORK

Arizona

W. J. Uren, assistant director of Labor Relations for Phelps Dodge Corporation, Douglas, becomes director, succeeding Gilbert C. Davis, retired. Uren, assistant director since 1944, has 25 years of service with the company.

William B. Chamberlain, Security Building, Phoenix, is now in charge of Greater Arizona, Inc. He was formerly manager of the Sunshine Club in Tucson, and prior to that, executive secretary to the late Sidney D. Osborn, former Governor of Arizona.

California

Edwin L. Mills, California division of highways, appointed staff highway traffic engineer for Western Highway Institute.

W. R. Patterson appointed general superintendent of the steel department, at the Torrance plant of National Supply Company. He also continues as chief plant metallurgist.

Professor Ralph Dubois, formerly in charge of Rolls Royce Merlin production with Packard, joins Aviation Facilities Associates, Arcata, as a motors consultant.

Paul D. Hileman, Los Angeles plant manager for Thompson Products, appointed to vice-presidency of the firm after 20 years of service.

W. Barry McCarthy appointed Ford Motor Company's Western region public relations manager succeeding John Weld, who left the position to take over a Ford dealership in Laguna Beach. Ralph S. Gordon, for 10 years the automobile editor of the Oakland Post-Enquirer, becomes assistant to McCarthy, with regional offices in Richmond.



Leonard F. Crowley appointed a vice president of Earle M. Jorgensen Company at the company's Los Angeles home office, where he has been successively manager of purchases and assistant manager of sales.

Union Oil Co. makes the following changes: Lawrence Wolff, formerly manager of general sales, appointed assistant to A. C. Stewart, vice president in charge of marketing; Roy Linden, formerly manager of the company's Northwest territory, named manager of general and foreign sales; F. K. Cadwell, formerly district sales manager for Tacoma, becomes manager of the Northwest territory.

James B. DuPrau assumes duties of the newly created position of vice president in charge of administration of the Columbia Steel Co.

Henry D. Kahrs, Oakland, becomes vice president and Portland manager for Coca Cola Bottling Co., succeeding Jack G. Boykin, transferred to Baltimore as vice president and manager.



Dr. Donald L. Benedict appointed assistant chairman of the department of electrical engineering at Stanford Research Institute.

Richard J. Conray appointed district manager of the Los Angeles branch office and warehouse, Whitman & Barnes division of United Drill & Tool Corp., succeeding the late E. L. Foreman.

E. V. Watts appointed production superintendent of the southern division of General Petroleum Corporation's production department.

Gordon J. Manary becomes manager of Pacific Lumber Co., succeeding E. E. Yoder, retired, at the Scotia plant.

Two new vice presidents of Tide Water Associated Oil Co. are H. T. Earl, in charge of crude oil purchases and exchanges to supplement production of the firm's Western division, and H. B. Haney, manager of transportation in Western division. Both were promoted from assistant vice president.

Robert Tuggy, Coastwise Line at San Francisco, named to newly created position of general freight agent.

B. J. Butler assumes post of vice president and sales manager for Atlas-Pacific Engineering Co., Emeryville.

Charles D. Gifford, director and Pacific Coast manager for Wesco Waterpaints, Inc., succeeds John G. Penniman as general manager of the firm.

David C. Frailey transferred by American Airlines from New York to San Francisco as district public relations representative for the firm in the Bay Area. He succeeds Richard E. Fisher, who will join the airline's New York offices.

Russell L. Curtis, general manager of Dow Chemical Co.'s Great Western division, named a vice president of the firm.

Jack E. Waldie, manager of Golden State Company's northern California division, named assistant general manager. Harold Sloan, ice cream manager for the firm, appointed northern division manager to replace Waldie.

Dr. J. Lloyd Henderson named quality control manager for Golden State Company; Al R. Beecroft appointed supervisor of safety and training, personnel department.

J. H. Dempsey elected president of San Diego Packing Co., succeeding the late E. M. Darrimon.

Maxwell L. Rubin and Raymond Wallenstein, both of Los Angeles, elected treasurer and vice president respectively of Winckler & Smith Citrus Products Co., Anaheim.

Dr. Stanley B. Freeborn, Assistant Dean, College of Agriculture, U.C.L.A., appointed by the President as a member of the national Water Pollution Control Advisory Board.

T. G. Hughes elected executive vice president, and B. W. Anthony elected secretary-treasurer of Oronite Chemical Co.

Hugo W. Druehl appointed manager of organization planning and personnel for Pacific Public Service Company and Coast Counties Gas and Electric Co. R. L. Hayden succeeds A. E. Strong as vice president and regional manager of Coast Counties Gas and Electric Co. Strong retired after 42 years of continuous service, but will retain his position as a company director.

P. W. Brown, vice president and general manager of Mathews Conveyor Company West Coast, San Carlos, elected president of the firm.

Russell C. Westover, Jr., becomes president of Ray Oil Burner Co., San Francisco, succeeding Mrs. R. C. Ray, who retires from active management.

T. H. Banfield, president of Iron Fireman Co., elected member of the board of directors for Stanford Research Institute.



Edward C. Ditzgen, formerly chief engineer with United Engineering Co., San Francisco, has recently joined the Rucker Company of Oakland, California, as chief engineer.

Richard W. Millar, recently retired as chairman of the board of Northrop Aircraft, Inc., appointed to direct a Los Angeles chamber of commerce program to spur television broadcasting and industrial development.

Dr. Earl Booth Working, formerly professor of chemistry at Kansas State College, joins the research staff of Truesdail Laboratories, Los Angeles.

Charles F. Fouts, with Cannon Electric Development Company's engineering department since 1941, appointed to the firm's sales staff.

Sheridan P. Gorman named administrative assistant to president George Killion of American President Lines. Gorman will be in charge of budget control. He comes here from Washington, D. C., where until May 1 last, he was attached to the executive office of the president as assistant chief, national security branch, bureau of the budget.

Wallace F. Hastie appointed manager of the San Francisco sales office for American Radiator and Standard Sanitary Corp., promoted from assistant manager of the Chicago sales office.

Clyde S. Fullerton becomes general sales manager for Transcontinental & Western Airlines.

James E. Shelton, president of the Security-First National Bank, Los Angeles, elected president of the California state chamber of commerce, succeeding Harry A. Mitchell, president of Western Pacific Railroad, who became treasurer. Adrien J. Falk, San Francisco, president of S&W Fine Foods, Inc., and chairman of the San Francisco board of education, elected first vice president. Neil Peetre, president of Barker Bros., Los Angeles, elected second vice president; Alden G. Roach, San Francisco, president of Columbia Steel Co., and president of Consolidated Western Steel Corp., becomes third vice president. James Mussatti, Palo Alto, begins his tenth year as the chamber's general manager.

James T. Gear, head of Swift & Company's San Francisco purchasing department since 1927, retires with nearly 50 years continuous service. V. R. Lodes, his assistant, succeeds him.

E. Russell Lutz, formerly with American President Lines as vice president of foreign administration, joins W. R. Grace & Co., and becomes manager of the Washington, D. C. office. W. A. St. Amant, manager of the Los Angeles office of Grace Lines, Inc., transferred to New York, and replaced in Los Angeles by R. A. Shiner, who comes from the Washington office.

H. L. Whitmore appointed manager of operations for American Airlines in Los Angeles, upped from manager of operations at El Paso.

Colorado

Howard J. Davis becomes assistant general manager for Colorado Fuel & Iron Corp., in charge of commercial steel sales in the Western division, headquartered at Denver. R. L. Hanes, district sales manager at Fort Worth, Texas, replaces Davis as manager of wire product sales in the Western division.

Montana

Carl Martin, Butte, appointed general superintendent for the Ermont open pit gold mining operation near Dillon. Frank Stagg, Butte, formerly with Ermont Mining Co., is in charge of mining operations. This enterprise is now controlled by the Olamont Mining Co.

Correction: Carl P. Jordan has succeeded M. E. Buck as general superintendent of Montana Power Company, but not as vice president as was reported.

Nevada

Harry Glover appointed mill superintendent of the Copper Canyon Mining Company. He has recently been associated with International Smelting & Refining Co. at Tooele, Utah, and he succeeds Ralph Hayden, who is on leave of absence.

Oregon

W. M. Kirkpatrick upped to assistant traffic manager for Denver & Rio Grande Western Railroad, with headquarters at Portland.

Permanente Cement Company makes the following changes: Leo McNett transferred from Oakland to the firm's Northwest division. Doug Ashton, formerly chief of the order department at Diamond, moved to Portland, Oregon, where he will handle cement sales throughout the entire state as well as southern Washington. Mel Fisher replaces Ashton. Laurance McEwen named administrative assistant to salesmanager E. H. Kendall, and will function as coordinator of sales.



J. F. Lewis, formerly in charge of production and purchasing at Hyster Company's Peoria, Illinois, plant, transferred to Portland as chief production engineer.

Colonel O. E. Walsh becomes North Pacific division engineer for U. S. Army Engineers, with Portland headquarters, replacing Colonel Theron D. Weaver, transferred to a European command.

S. C. Rasmussen, Jr., succeeds H. D. Rasmussen, retired, as manager of General Paint Corp.'s Oregon division.

Utah

W. G. Rouillard named manager of Garfield, Utah smelter operations for American Smelting & Refining Co. Raymond Thompson, former assistant superintendent, replaces Rouillard as superintendent of the smelter.

W. R. Pavela, branch manager for Fruehauf Trailer Company at Salt Lake City, appointed regional manager in addition to his duties as branch manager. He is now in charge of Fruehauf activities in Utah, Montana, Wyoming and southern Idaho.

Washington



Frank J. Wood, joins Permanente Metals Corp. as chief plant engineer of the fabricating division at Permanente's Trentwood rolling mill, Spokane. He also has similar responsibilities at the Permanente, Calif. foil mill and the Newark, Ohio, rod and bar mill.

Colonel E. C. Itschner named Seattle district engineer for U. S. Army Engineers, replacing Colonel L. H. Hewitt, who is assigned to Panama duty.

Miles Standish, for 26 years electrical superintendent of Northwest Magnesite Company, Chewelah, retires, succeeded by Gordon J. McCulloch.

Loren D. Thacker appointed production manager for Pacific Wire Works Company, Seattle.

Wyoming

Ray R. Strand, Casper, named superintendent of Stanolind Pipe Line Company's Wyoming division, succeeding H. M. Hill, who resigned to become manager of the pipeline department of Utah Oil Refining Company in Salt Lake City. Hobart G. Mariner named assistant to Strand.

Associations Elect

San Francisco Chapter of Systems and Procedures Association of America officers for 1949-1950: President, John W. Hulen, Safeway Stores, Inc. Retirement Service; Vice-President, Richard E. May, Industrial Indemnity; Secretary, John C. Peters, Matson Navigation Co.; Treasurer, Cecil F. Peirano, Crown Zellerbach Corp.; Director at Large, Charles E. Noll, Matson Navigation Company.

Airport Operators' Council: B. M. Doolin, manager of the San Francisco International Airport, president.

American Steel Warehouse Association: Colorado chapter: W. E. Geer, Midwest Steel & Iron Works Co., Denver, president; W. J. Burkhardt, Burkhardt Steel Co., Denver, vice president; A. M. Hayes, Hendrie & Bolthoff Co., Denver, secretary-treasurer. Intermountain chapter: H. C. Kimball, Z.C.M.I. Wholesale Hardware Div., Salt Lake City, president; Gordon Evans, the Galigher Co., Salt Lake City, vice president; Eugene Lundstrom, Mine & Smelter Supply Co., Salt Lake City, secretary-treasurer; Northern California chapter: Paul Oakley, George R. Borrmann Steel Co., Oakland, president; Harry Levitt, Dunham, Carrigan & Hayden Co., San Francisco, vice president; Lester Peters, Baker & Hamilton, San Francisco, vice president; R. D. Cortelyou, A. Milne & Co., San Francisco, secretary-treasurer; South-California chapter: J. Thomas Mahl, Mahl Steel & Supply Co., Huntington Park, president; T. L. Kishbaugh, Joseph T. Ryerson & Son, Inc., Los Angeles, vice president; G. C. Holly, Service Steel Co., Los Angeles, vice president; W. H. Lindberg, Earle M. Jorgensen Co., Los Angeles, secretary; William L. Rawn, Jr., The R-J-M Co., Los Angeles, treasurer; Pacific Northwest chapter: Norton Peck, Pacific Metal Co., Portland, president; John Gruley, Gilmore Steel & Supply Co., Inc., Portland, vice president; H. S. Barde, Pacific Steel Warehouse Co., Portland, secretary-treasurer; Washington chapter: Clyde W. Summerville, Seattle Steel Co., Seattle, president; Arnold S. Allen, Jr., Seattle Hardware Co., Seattle, vice president; R. N. Van Der Vart, A. M. Castle & Co., Seattle, secretary-treasurer.

American Petroleum Institute's production division, Rocky Mountain district: Zack M. Brinkerhoff, Jr., chairman; Claude E. Peavey, Phillips Petroleum Co., Salt Lake City, vice chairman for Utah; C. L. Larson, Jr., division manager for Stanolind Oil and Gas Co., Casper, Wyoming, vice chairman for Colorado; W. M. Saxon, division manager for Pure Oil at Billings, vice chairman for Montana; D. T. Hoenshell, General Petroleum, Casper, Wyoming, secretary-treasurer.

American Society for Metals, Utah chapter: Don Rosenblatt, Salt Lake City, chief metallurgist for American Foundry and Machine Co., chairman for the 1949-50 term.

Dried Fruit Association of California: T. O. Kluge, president; D. Ray Hoak and W. K. Hines, vice presidents; J. Uhland, treasurer; Harry C. Dunlap, vice president and secretary.

PAINT DRYING

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What Small Lumber Mills Need Most

Three things needed by small lumber mills to enable them to compete successfully with the large operators, were stressed at the annual meeting of the Western Forest Industries Association at Corvallis, Oregon, June 11, as follows:

1. Improved facilities to save labor and produce more efficiently.
2. To have their lumber remanufactured by plants equipped to turn out quality comparable with large mills who finish their own lumber.
3. Access roads into government timber lands now inaccessible, possibly to be provided by having the government set aside a certain amount of its timber sales receipts, perhaps \$1 a thousand feet.

Slides were shown by Orin Page of Hyster Sales Co. illustrating how several small mills have improved their facilities for sorting lumber to grade, length and size through use of mobile equipment and rolls.

Operators of rough green sawmills were told by Francis Vollstedt of V-K-V Lumber Co. of McMinnville, Ore., that they should improve the efficiency of their plants with labor-saving equipment, produce more accurately sawn material and have their lumber remanufactured by plants equipped to resaw, surface trim and mill their product to get comparable quality with the lumber produced by the large operators in their own mills.

Small mills should market their lumber through reputable, experienced, wholesale outlets specializing in small mill lumber and which sell largely to retail distributors or to industrial consumers, thus reducing to the minimum the number of middlemen.

Need for financing access roads, according to H. J. Andrews, regional forester for the U. S. Forest Service, is due to the fact that the present access program is creeping ahead only "inch by inch," because of failure of Congress to appropriate construction funds. Whereas 7,500 miles of new roads are needed in the Pacific Northwest, much of the money available goes for maintenance of the 16,000 miles of existing roads in the national forests of Oregon and Washington.

Small operators, Andrews said, frequently cannot afford to build the many miles of road required to tap timber stands which the government would like to open, and as a result there are frequently few, if any, bidders. Reasonable agreements among owners of private roads in areas where public and private lands are intermingled, to permit transportation of logs cut on federal lands without uneconomic duplication of roads is important.



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July, 1949—WESTERN INDUSTRY

The Vanishing Iron Horse

With the nation's railroads scrapping steam locomotives at a rate of twelve a day, the old "iron horse" of American song and story is a virtual curiosity west of the Rockies, according to a nation-wide survey conducted by SKF which first equipped the old and new types of engines with anti-friction bearings.

Three major western railroads have retired 1211 steam locomotives, replaced them with 1488 diesel electric units and have 290 others on order.

Union Pacific is operating nothing but diesel power west of Ogden, Utah; Southern Pacific, which has retired 141 steam locomotives since the war, now operates only 63 switch engines with steam on its Pacific lines, and Santa Fe reports 669 diesel electric units have replaced 540 steam locomotives.

In the last two years, United States railroads have retired 4800 steam locomotives while only 138 were ordered, and in 1948 alone, 2678 diesel-electric units were ordered in contract to 69 for steam, a rate of more than 38 to 1, the SKF official reported.

Since 1942, the number of steam locomotives has declined by more than 6300, while that of the diesel-electrics has increased by nearly 4000. Approximately 1100 steam engines were added during the same period.

In spite of this strong trend, steam-driven locomotives still furnish 85 per cent of all railroad power in the nation. That ratio of steam to diesel is reversed in the West, however.

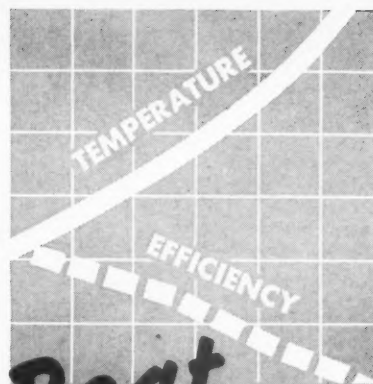
Although initial cost of the diesel-electric form of motive power is high, this is more than offset by the long-range gains in great engine availability and operating economies made possible by cheaper fuel, faster schedules and reduced maintenance costs.

New Mexico Conference

A New Mexico Conference on Industrial Development, sponsored jointly by the New Mexico School of Mines, State College at Las Cruces, and the University of New Mexico, is being held on the University of New Mexico campus at Albuquerque, June 29-July 1.

Plomb Becomes Proto

Plomb Tool Company, Los Angeles, is now using a completely new trademark design, featuring the trade name PROTO. This design has a distinctive shape, employs a special type of lettering, and shows the same young lady used in the company's old design, with the words "Professional Quality" superimposed. It is now being used for catalog and other literature, as well as for decals, signs, display boards, and other point-of-sale materials.



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Western TRADE WINDS

News about those who distribute and sell industrial equipment and materials

Goodyear Tire & Rubber Co. establish a new sales territory in California, handled by N. J. Cox, transferred from the Phoenix territory. Cox, headquartered in Fresno, will service customers from Los Angeles north to Madera county. J. L. Reid replaces him in the Phoenix area.

Globe Steel Tubes Co., Welding Fittings Division, appoints Pacific Pipe Co., 401 Folsom St., San Francisco 6, California, exclusive distributor of Globe precision process welding fittings for the San Francisco and Oakland Bay areas. A complete line of seamless welding fittings and flanges will be stocked in various weights and in sizes ranging from 1/2 inch to 24 inch diameters.

William A. Hazeltine, of J. E. Hazeltine & Co., Portland, has been elected vice-president of the American Supply & Machinery Manufacturers Association.



Jack F. Brossart, former general sales manager of Industrial Filter & Pump Manufacturing Co., Chicago, has been appointed Pacific Coast manager of the company.

Newly named Allis-Chalmers dealers are the Mill Supply Corp., 110 Division St., Salem, Ore., for the firm's motors, controls and Texrope drive equipment in Benton, Linn, Yamhill, Marion, Polk and Clackamas counties, and the Dominic Hardware, 10 East Fourth St., Pittsburg, Calif., for Allis-Chalmers centrifugal pumps in Contra Costa, Solano and Sacramento counties. Carl G. Steelhammer is president and manager of the Mill Supply Corp. Dominic Hardware is owned by Dominic Vagliante; Thomas D. deBruyn is in charge of product sales.

Floyd B. Stone and R. C. Arquette, co-partner, announce acquisition of the interest of K. M. Ryals in the manufacturing and crane and hoist operations of the Stone-Ryals Electric & Manufacturing Co. They are district representatives and area manufacturing facilities for Shepard-Niles Crane & Hoist Corp., Montour Falls, New York, and Central Pacific Coast authorized service & repair station for "Budgit" Hoists. Complete service facilities, mechanical and electrical, for maintenance and repair of all types and makes of overhead cranes, hoists and welding equipment, including motors and controls.

Industrial Products Mart in Los Angeles has reorganized and incorporated as the International Trade Mart, Inc., 3750 Wilshire Blvd. They will effect national and international distribution of domestic products and handle distribution here of foreign goods.

V. E. Lawford named sales representative for Buckeye Tools Corp., Dayton, Ohio, in the northern California area, with offices in Oakland. He will service most of the area from the Oregon line to Bakersfield.

E. S. Browning Company, San Francisco and Los Angeles chemical firm, has been purchased by Innis Speiden Company of New York.

Pacific Coast Industrial Equipment Co., 317 North Redondo St., Los Angeles 4, establish a new phase of operations. They now contract for the design, fabrication and installation of paint baking ovens, dryoff ovens, bonderite machines, and floor type and overhead type power conveyors. This new phase of operations is in addition to their representing the following firms: Acme Wire & Iron Works, Northern Engineering Works, Wean Equipment Corp., International Conveyor & Washer Corp., Morrison Engineering Corp., and Gray Hub Company.

Campbell & George Co., manufacturers representatives at 379 Brannan St., San Francisco, have added to their northern California representations the Benbow Trac-Trolly System and the Cyclo-Monitor, an automatic monitoring device for production equipment by either closing or opening an electrical circuit after a predetermined number of strokes or revolutions have taken place.

Ziegler Steel Service Co., Los Angeles, appoint Larry R. Butler, 805 Echo, Fresno, sales representative to cover the San Joaquin Valley. Robert B. Franklin, 246 South First St., Phoenix, Arizona, appointed to cover Arizona, New Mexico, and Western Texas.

Wilson & George Meyer & Co. appointed West coast distributor of Tenox anti-oxidants, in addition to their present sales representation of plastic powders and industrial chemicals made by Tennessee Eastman Corp.

Wall-Lundberg Co., 961 North Loring St., Portland, Oregon, named exclusive Oregon and southern Washington distributors for the Carborundum Co., Niagara Falls, N. Y., abrasive manufacturers.

Thaler Pipe & Supply Company, wholesale distributors of pipe, valves, and fittings, appoint Harold Odegard as manager of their San Jose branch. Larry Menge becomes sales manager, in charge of sales in areas served by Emeryville and San Jose.

James L. Burke Company, Salt Lake City, appointed distributors of Trambeam Equipment Sales products. They will cover southern Idaho, Utah, Nevada, and western Colorado. Principals of the Burke Company are: F. E. Arnold, president; F. W. Monohan, vice president.

Frank M. Roner, manager of the Boise division for Blake, Moffitt & Towne, transferred to the firm's Oakland, California, division. He is replaced by John E. Pemberton.

Vern L. Hobson transferred from San Francisco to Seattle as district manager of General Electric Supply Corp.'s appliance sales division there.

General Steamship Corp., San Francisco, appointed Pacific coast general passenger agent for American Export Lines, to handle business in Hawaii, Alaska, British Columbia, Washington, Oregon, California, Idaho, Utah, Nevada, Arizona, and New Mexico.

Merger of the Heimer Equipment Company with the Roll-Rite Corporation brings together two materials handling organizations. Nationally known products of the following companies are now being offered on an exclusive basis through this one source: Towmotor Corp.: fork trucks, lift trucks, tractors; Barrett Cravens Co.: Hand lift trucks, skids and pallets, portable elevators; Harnischfeger Corp.: Hoists, trolleys; Bussick Co.: Casters & wheels; Roll-Rite Corp.: Rubber wheels & casters, bridge ramps, special trucks; American Monorail Co.: Overhead MonoRail Systems, cranes, monotractors; Nutting Truck Co.: 2 & 4 wheel trucks, casters, trailers; Buschman Mfg. Co.: Skate wheel conveyor, roller conveyor; Marsh Stencil Machine Co.: stencil machines and supplies. Ample stocks of all types of equipment are carried at all times at 801 Jefferson St., Oakland 7.

R. H. Fisher Company, San Francisco manufacturers' agent for electrical products, appointed exclusive Northern California and Nevada representative by the O. Z. Electrical Manufacturing Company, Inc. of Brooklyn. The firm will carry local stock of nationally advertised O. Z. products, including the new "All-Bakelite Insulating Bushings," conduit fittings, cable terminators, connectors and grounding devices.



Francis R. Loetler, with National Starch Products, Inc., is transferred to San Francisco, as sales manager of the Pacific coast division. He is chemical engineer, and has served with the Technical service department of the company at both New York and Chicago since 1940.

Baron Industries, handling paint finishing supplies and equipment, are now established in new quarters at 2315 Jesse St., Los Angeles 23. They serve the industry with electric infra-red ovens, powered conveyors of all types, vapor degreasers and solvents, spray equipment, paint heaters, and painters supplies. They are in position to lay out and install a complete refinishing system or any part of it.

Henry R. Hansen, 330 Downing St., Denver 3, appointed sales representative for Merrill Brothers, Maspeth, N. Y., manufacturers of drop forgings and materials lifting devices. Hansen will cover Colorado, Wyoming, Utah and New Mexico.

Rome Cable Corp., Rome, N. Y., establishes Western sales offices and appoints O. I. Lewis as Pacific coast sales manager with headquarters in the Los Angeles office, where H. S. Warren is district sales manager. San Francisco office is at 1045 Bryant St., with C. H. Kaufman as manager, and Seattle office is at 4304 - 4th St. South, with K. B. Arnett as manager. Offices have also been established at Portland, Oregon, and Salt Lake City, Utah. In addition to the regular wire and cable line, Rome Cable Corp. will handle all sales of the products of Andersen-Carlson Manufacturing Co., Torrance, California.



• Newly-elected officers of Materials Handling Association of Southern California. Seated, left to right: Vice president, J. Alden Lane, Snyder Engineering Co.; President, Stanley E. Morris, Stanley E. Morris Co.; Secretary-treasurer, William F. Mills, Pacific Factory. Standing, left to right: Retiring president, A. Mazzola, Angelus Engineering Co., Director, Vincent J. Pence, Mailler-Searles, Inc. Senior director Milt Canfield, Jr., M. E. Canfield Co., and newly-elected director O. E. Holher, Faultless Caster Corp., elected for a three-year term, did not attend this meeting.

Eastbound Air Freight Builds Up

Air freight is showing good progress, recent all-cargo flights by United Air Lines from both San Francisco-Oakland and Los Angeles have run with such high load factors that eastbound shipments have exceeded incoming shipments to California for the first time in United's history.

The large increase in eastbound movement, estimated at approximately 30 per cent above the same period last year, was due in part to the concentrated sales effort being made by United personnel in the area, in part to special eastbound commodity rates and in part to fast new Cargoliner schedules from California to Chicago and the East. In addition United is helping California shippers develop new markets in the Mid-West and on the Eastern Seaboard.

Among other factors listed by Bickley, manager of cargo sales, were the seasonal movement of cut flowers and perishables—strawberries, cherries and early season figs—to markets across the nation; heavy shipments of calculating and adding machines from Oakland, and shipment of cotton from Fresno. A new air-steamship agreement with American President Lines and Pacific Far East Lines, Inc. also produced additional business in the form of embrodered goods from the Far East and Philippines and Chinese delicacies.

Safety Conference

The eleventh annual Western Safety Conference was held at the Multnomah Hotel in Portland, Oregon, June 26-29, including six major program divisions.

Industrial Safety division was under direction of Robert M. Evenden, Salem. John L. Carptener, station KOIN, Portland, headed the Traffic Safety division sessions. Public safety chairman was Jack Hayes, deputy state fire marshal, Salem. Home Safety and Women's Activities division had as chairman Eric Saukkanen, of Portland; Mrs. R. H. Walter, also of Portland, on that city's Traffic and Transportation Commission; Mr. Jack Lowe, of the Fire Department Bureau of Portland. American Society of Safety Engineers conducted discussions under chairman George Lewis, a safety engineer with Portland Gas & Coke Co., and chairman Captain J. A. Hazelwood, superintendent of Operators, Commission of Public Docks, Portland, headed the Maritime safety division.

Topics under discussion included: Uniform State Aviation Laws; Law Enforcement from the State Level; Law Enforcement and Public Education; Safety Regulations and Functions of CAB and CAA; Federal-State Coordination in Accident Investigation; Airport Liabilities and Exposures and Fire and Crash Procedures; and Airport Problems.

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Mechanical Kinks

By W. F. SCHAPHORST, M.E.

How Much Weight Will A Pipe Support?

Ordinary pipes often come in handy for use as columns or struts, or for use as "push members" in transmitting forces. Due to its circular form a pipe is ideal for these purposes. No shape is stronger than a pipe.

However, when it comes to "figuring columns" it usually takes considerable time to dig around in handbooks, etc., and as a result the use of a pipe is avoided. Or, a pipe much too large is used—or perhaps too small—chosen entirely by "guess." The pipe that is too small may fail and be the cause of costly disaster.

Simple to Figure

Those who may have occasion to use standard pipes in this way will find the following simple table and rules of value—

1. Knowing the load that is to be carried and the length of pipe needed, make a "guess" as to the size of pipe. Column A in the tables will help in making the guess as it gives the maximum length of pipe that may be used. Thus, never use a 1/8" pipe, as an important column, longer than 14.5". Never use a 3" pipe, as an important column, longer than 139", etc.

2. Multiply the length of the pipe in inches by the corresponding figure in column B of the table. This product should never be greater than 12,000. If it is greater than 12,000, it means that you have guessed a pipe that is too small. After getting the right size, proceed as follows:

3. Subtract the above product from 19,000. If the difference is equal to or less than 13,000 use it, in (4). If the difference is more than 13,000 use 13,000 in (4).

4. Multiply by the figure in column C, corresponding with the pipe size.

The result is the number of pounds that the pipe will carry as a column, strut, or push member. If the result is less than the load to be carried, try again, using the next larger pipe size, and so on until the proper and most economical size is selected.

Size of pipe inches	Column A Maximum length inches	Column B	Column C
1/8	14.5	826.4	0.07
1/4	19.4	617.3	0.12
3/8	25.	480.8	0.17
1/2	31.3	383.1	0.25
3/4	40.	300.3	0.33
1	50.6	237.5	0.50
1 1/4	64.7	185.5	0.67
1 1/2	75.	160.5	0.80
2	94.7	126.9	1.07
2 1/2	114.	105.3	1.71
3	139.	86.21	2.24
3 1/2	161.	74.63	2.68
4	181.	66.23	3.18
4 1/2	202.	59.52	3.68
5	226.	53.19	4.32

Let us now take an example to make certain that the above is fully understood. Let us say that we have a load of 10,000 pounds and we want to support it at a height of 84 inches. What size of pipe shall we use? Following the above rules we proceed in this way:

1. "Guessing" the size of pipe, column A shows that 84" falls between 1 1/2 and 2" pipe. We will try a 2 in. pipe because, of course, a 2" pipe is stronger than a 1 1/2" pipe.

2. $84 \times 126.9 = 10,650$. This is less than 12,000 and we can therefore continue.

3. $19,000 - 10,650 = 8,350$. This is less than 13,000 and we may therefore use it in (4). If the difference were 18,350, we would have to use 13,000 in (4).

4. $8,350 \times 1.07 = 8,950$.

This means 8,950 pounds, but since 8,950 is less than 10,000 pounds a 2" pipe is too small. We will therefore recalculate, this time trying a 2 1/2" pipe. Briefly, the results are as follows:

2. $84 \times 105.3 = 8,850$.

3. $19,000 - 8,850 = 10,150$.

4. $10,150 \times 1.71 = 17,370$ pounds.

A 2 1/2" pipe will therefore be amply safe to hold up 10,000 pounds at a height of 84 inches. The result shows that a 2 1/2" pipe is capable of holding nearly twice as much as a 2" pipe at that height. The small difference in pipe sizes and the great difference in strength makes clear the necessity for careful computation and the danger involved in guesswork.

Don't take chances. Don't guess.

The above rules are based on the well known and much used "American Bridge Co. Formula."

Modernizing Your Power Plant

Modern industrial power plants are so much more economical and efficient than those of ten to twenty years ago that owners of old plants are showing concern over the state of affairs. They are wondering what can be done, if anything.

In most instances the old plant, particularly the boiler plant, can be modernized without great cost. In some instances it can be made better than certain so-called modern plants. And, what is of prime importance, the cost of the modernization will be considerably less than would be the cost of a new plant.

Any thinking person will realize that heat will pass through an old boiler plate and an old tube as readily as it will pass through a new plate, provided the plate is kept clean. As a matter of fact there should be a slight improvement with age because boiler plates and tubes usually become slightly thinner. The boiler whose heating surface does not change with age is a rarity. Therefore, arrange to keep the tube perfectly clean inside and out. The modern method is to keep boiler water so pure that no scale will be deposited. Install cleaning devices. By installing a soot cleaner all ash and soot may be kept off the inside of the tubes.

Put the boiler itself in A1 condition, and then get after and improve combustion. It is as important to have complete and proper combustion as it is to have perfectly clean heating surfaces.

Almost invariably combustion efficiency can be improved by increasing furnace volume. This is accomplished by installing modern boiler baffle walls and sometimes modern furnace lining. There must be no air leakage through boiler baffle walls. And there must be no leakage through the outside boiler walls. Proper baffle wall design will give the correct gas velocity through the passes of the boiler. There will be no slagging. Be sure to avoid cracking or breaking. Don't install cheap equipment.

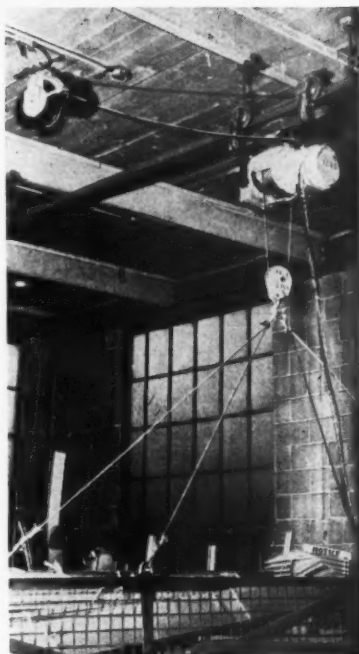
A steam superheater, perhaps, should be installed. Perhaps a feed water heater. Perhaps an automatic feed water regulator. Or a modern damper regulator, steam purifier, steam traps, automatic combustion control system, pump governor, steam flow meter, etc. All of these devices are of great importance in the modernization of industrial power plants. It is possible to do almost anything to an old boiler plant with the exception of making the old boiler stronger. Such a thing can be done, of course, but it is not economically practicable.

WESTERN INDUSTRY—July, 1949

Four-Part Bridle-Sling Facilitates Hoisting

A four-part bridle-sling provides a simple solution to the difficult problem of hoisting such loads as sheet-steel, machinery, ship-to-shore cargoes, construction equipment and large rectangular-shaped loads like the basket-type conveyance illustrated. The large basket-like container carries fabricated sheet-metal sections from one part of the shop to another. It comprises an angle-iron frame and wire mesh body.

Ends of the sling cables are permanently secured to the frame. Thimbles prevent wear where the cables engage the hoist hook. The Yale hoist handling the load is a 1/4-ton wire-rope trolley-mounted unit. The load is raised and lowered by push-button control and is pushed along the trolley by shoving the load. A reel suspended from the ceiling takes up slack electrical supply cable and eliminates dangling cords. The accompanying chart indicates safe loads which can be carried by this type of sling.



• Four part bridle sling properly hung.

SAFE LOADS			
Sling Size	60°	45°	30°
1/4"	2,100	1,700	1,150
3/8"	4,900	3,900	2,700
1/2"	8,500	7,000	4,700
5/8"	13,000	10,500	7,200
3/4"	19,500	15,500	10,500
7/8"	25,500	20,000	14,000
1"	32,500	26,000	18,000
1-1/4"	49,000	39,000	27,000
1-1/2"	72,000	57,000	40,000

Oil Education

As a part of its program to provide Western educators with information about the oil industry, Standard Oil Company of California is cooperating with Fresno State College in presenting a unit on petroleum conservation in the College's summer workshop on conservation of Natural Resources.

Thirty teachers enrolled in the conservation workshop, and visited Standard's natural gasoline plant at Kettleman Hills on June 22. H. J. Maxwell, superintendent, Kettleman district, natural gasoline department, discussed conservation methods, after which the class toured the plant.

Earthquake Damages

Various instances of damages to industrial plants as a result of the April 13 earthquake in Washington are coming to light. President Owen R. Cheatham, president of Georgia-Pacific Plywood and Lumber Company, notified stockholders that plant damages of two plywood mills and one lumber mill operated by the firm, plus loss of pending business pending repairs, caused a loss of \$200,000. Reynolds Metals Company sustained heavy damage to buildings at their Longview plant, and jamming of a craneway at the Long-Bell lumber mill at Longview bottled up production temporarily.

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• H. C. McClellan, President, Old Colony Paint & Chemical Co.; Dr. Roger W. Truesdail, President, Truesdail Laboratories, and Percy J. Keith, W. P. Fuller & Co., President, Los Angeles Paint, Varnish and Lacquer Assn., inspect action of the Weather-Ometer in testing paint specimens.

Truesdail Laboratories, Inc., consulting chemists and engineers of Los Angeles, have developed an answer to Mark Twain's famous comment that everybody talks but nobody does anything about the weather. By means of a newly announced weathering service which employs the latest type of Atlas Twin-Arc Weather-Ometer, synthetic weather is created in the laboratory to accomplish controlled tests of the destructive effects of the summer sun, rain and temperature changes on paints, varnishes, asphalt, roofing, rubber, plastics, textiles and other materials whose deterioration factors under outdoor exposure are required by manufacturers and buyers. By concentrating elements of the testing, results formerly achieved only by months and even years of actual outdoor exposure are accomplished in days.

Clinic on Foreign Trade Zone Problems

How to make a foreign trade zone tick properly is the problem to be discussed at the first international foreign trade zone clinic to be held in Seattle July 18-20, sponsored by the Seattle Chamber of Commerce. Among the topics to be discussed in panel sessions are the following:

Entry and storage of dutiable merchandise: comparisons showing entries made for direct consumption, into bonded ware houses, into foreign trade zone, as consignment and as stockpiling.

Manipulation of merchandise: manipulation versus merchandising, permissible manipulations, repackaging, shrinking and culling, maturing, exhibiting merchandise within and outside zone.

Removal of merchandise for direct consumption, sampling, by abandonment, for re-exporting, privileged and non-privileged merchandise.

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Packaging Conference To Be Held Aug. 9-12

The Second Annual Western Conference on Packaging, Packing and Shipping, which will be held concurrently with the 2nd Annual Western Packaging Exposition at San Francisco's Civic Auditorium, August 9-12, inclusive, will have as its basic program theme cost reductions in the fields of packaging, packing and shipping.

Speakers will include the following Western packaging, packing and shipping authorities:

J. A. Walls, Manager, packaging Research merchandising division, Rexall Drug Company, Los Angeles; J. W. Pipes, president, Mission Dry Corporation, Los Angeles; G. W. Aljian, director of purchasing and packaging, California & Hawaiian Sugar Co., Ltd., Crockett; H. C. Diehl, director and secretary, The Refrigeration Research Foundation, Berkeley.

From the East, speakers will include John A. Warren, Package Consultant, American Home Products Corp., New York, N. Y., who will also conduct a panel discussion. Dr. William Rabak, of the USDA Western Regional Laboratory, is Chairman of the conference.

Engineering Institute Meets on Berkeley Campus

Second annual meeting of the Heat Transfer and Fluid Mechanics Institute was held on the Berkeley campus of the University of California, June 22-24.

Dr. Richard G. Folsom, professor of mechanical engineering, was general chairman of the meeting and delivered the opening address. Technical session speakers included scientists from all parts of the country.

The 1949 Institute was sponsored by the engineering colleges in California and the West Coast sections of the following engineering societies: American Institute of Chemical Engineers, American Society of Mechanical Engineers, American Society of Refrigerating Engineers, American Institute of Mining and Metallurgical Engineers, American Chemical Society, American Mathematical Society, Institute of Aeronautical Sciences, American Physics Society, and American Society of Heating and Ventilating Engineers.

Mechanical Engineers Hold Semiannual Meeting

President Robert G. Sproul of the University of California delivered one of the principal addresses at the semi-annual meeting of the American Society of Mechanical Engineers held June 27-July 1 at the University's Extension Building in San Francisco.

Engineers from all over the nation participated in the meeting. Faculty

July, 1949—WESTERN INDUSTRY

OPPORTUNITY SECTION

members from the University of California and Stanford University took a prominent part in the scientific sessions.

Dr. Sproul spoke on "The Engineer and the World Outlook in the Atomic Age" at the Society's banquet on June 29.

The 26 technical sessions scheduled covered many engineering developments and included sessions on management and education.

Feather River Project Visited

Traveling as personal guests of the Pacific Gas and Electric Co., over 180 members of the press in California spent June 7 viewing the \$62,000,000 construction development of the Feather River. The privately-owned utility company, in giving the first press tour of the giant project, chartered a special train to give publishers the first look at Cresta and Rock Creek Dams, Powerhouses, and Tunnels in the Feather River Canyon, located some 200 miles northeast of San Francisco.

First of the new power is scheduled to pour forth next November from the 101,000-hp. generators of Cresta powerhouse. Three months later in February, 1950, the 169,000-hp. Rock Creek powerhouse is scheduled for operation. Rock Creek Dam construction began Sept. 8, 1948, and is now 91% completed on concrete work. First concrete was poured at Cresta Dam on August 6, last year, and the placing is now 96% completed.

P. G. and E.'s over-all construction program in California has created 7,000 new jobs in its post-war addition of 2 million new electric horsepower. Numerous substations, miles of transmission lines, and a considerable expansion of the natural gas systems are also included as the company proceeds at a rate of more than \$12.5 million per month.

Electronic Exhibit

The West Coast Electronic Manufacturers Association will hold their fifth annual Pacific Electronic Exhibit August 30, 31, September 1 at the Civic Auditorium in San Francisco, in conjunction with the 1949 Western regional convention of the Institute of Radio Engineers.

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National Panel of Industry

Labor, agricultural and industrial leaders will get together at their fifth national forum, sponsored by the University of Wyoming at Laramie on August 15, 16, and 17.

A. F. Vass, professor of agronomy and agriculture economics at the University, and chairman of the forum committee, indicated that the discussions would be directed toward keeping our economy on an even keel. Topics include labor and industrial relations, reclamation, and federal aid.

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Johnston Stainless Welding Rods

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Arizona Welding Supply Co.
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J. E. Haseltine Co.
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MacDonald Co.
Reno

Mahl Steel & Supply Co.
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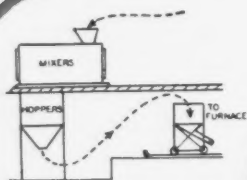
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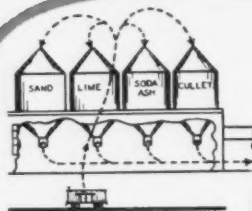
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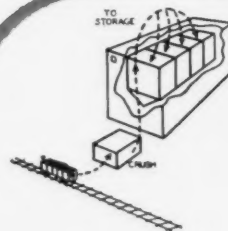
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